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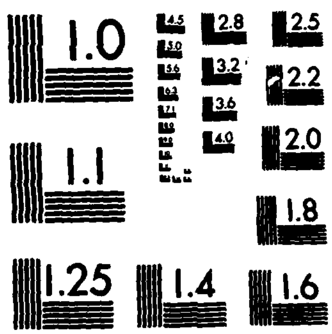

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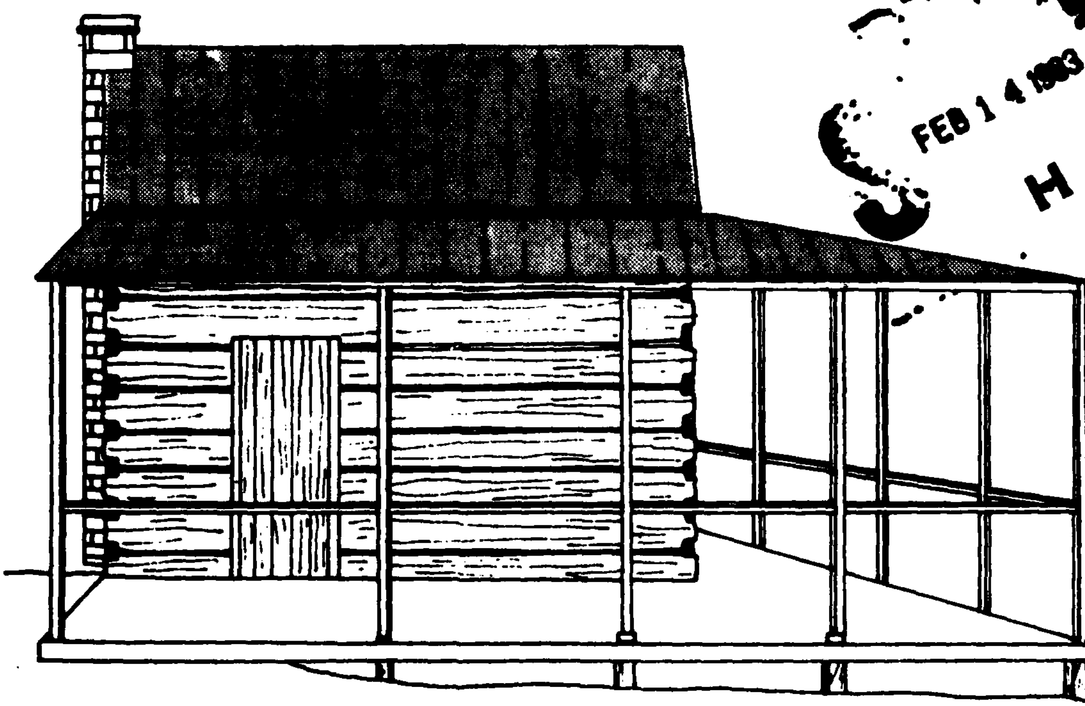
An Inventory and Evaluation of Architectural and Engineering Resources of the

BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA,

TENNESSEE AND KENTUCKY



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Cover Design: Single-pen house (BS26) in the Big South Fork National River and Recreation Area, Kentucky and Tennessee, showing German influence in the off-center placement of the front door

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Historic places
Blue Heron Coal Mine
Coal
Bridges
Railroads
Houses

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Inventory and evaluation of architectural and engineering resources was conducted in the 123,000-acre Big South Fork National River and Recreation Area (BSFNRRA) in the Cumberland Plateau region of southeastern Kentucky and northeastern Tennessee. Objectives of the research were to: (1) determine the significance and (2) make recommendations regarding the long-term management of the important architectural and engineering resources (i.e., those considered potentially eligible for the National Register of Historic Places).

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Nineteen buildings were identified as being potentially eligible for the National Register, including historic farmsteads, a hunting lodge (Parch Corn Lodge), and various buildings which are of importance for interpretative use.

The significant engineering resources of the National Area consist of one Whipple truss bridge, one plate-girder bridge, one ballast-filled concrete arch bridge, and the Blue Heron coal tipple/tramway. Two other bridges may prove to be significant to the ongoing bridge preservation plan of the State of Tennessee.

General recommendations for the preservation, maintenance, or restoration of the buildings, bridges, and coal tipple/tramway have been made. During the course of this study (although not originally intended as part of the study), a total of 230 archaeological sites was discovered. These discoveries, in conjunction with other known sites, brings the total of known archaeological sites within the BSFNRRA to 457.

FINAL REPORT

INVENTORY AND EVALUATION OF ARCHITECTURAL AND ENGINEERING RESOURCES OF THE BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA, TENNESSEE AND KENTUCKY

Contract No. DACW62-81-C-0013

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Cultural Resources Report 82-4

February 25, 1982

ABSTRACT

An inventory and evaluation of architectural and engineering resources was conducted in the 123,000-acre Big South Fork National River and Recreation Area (BSFNRRA) in the Cumberland Plateau region of southeastern Kentucky and northeastern Tennessee. Field crews visited the sites of 273 buildings shown on 1952-1955 USGS 7.5 minute quadrangle maps and on a 1934 Kentucky topographic map (all within the BSFNRRA boundary). Engineering resources were identified by examination of topographic maps, and consisted of 21 structures within the boundary and 4 outside the boundary (added at the request of the Corps of Engineers because of the possibility of adverse impact under some alternative development plans). The major ultimate objectives of the research were to: (1) determine the significance of these architectural and engineering resources, and (2) make recommendations regarding the long-term management of the important resources (i.e., those considered potentially eligible for the National Register of Historic Places).

Of the 273 building sites investigated, a total of 49 standing buildings was found. Nineteen buildings were identified as being potentially eligible for the National Register. Two groups of three buildings each are historic farmsteads; another group of four buildings is an historic hunting lodge (Parch Corn Lodge). The remaining nine buildings are of various types in scattered locations, which are of importance for interpretive use.

Of the 25 engineering resources identified on the maps, many of the bridges are no longer extant. The engineering structures within the BSFNRRA consist of ten bridges, two gaging stations, and a coal tipple/tramway. The significant engineering resources of the National Area consist of one Whipple truss bridge, one plate-girder bridge, one ballast-filled concrete arch bridge, and the Blue Heron coal tipple/tramway. Two other bridges may prove to be significant to the ongoing bridge preservation plan of the State of Tennessee.

General recommendations for the preservation, maintenance, or restoration of the buildings, bridges, and coal tipple/tramway have been made. During the course of this study (although not originally intended as part of the study), a total of 230 archaeological sites was discovered. These discoveries, in conjunction with other known sites, brings the total of known archaeological sites within the BSFNRRA to 457.

ACKNOWLEDGEMENTS

The field supervision of the architectural and engineering evaluation was done under the direction of Dr. Richard S. Levy, senior staff archaeologist and principal investigator for Environment Consultants, Inc. (ECI). Support staff included: John P. Johnson, engineering historian; Margarita Solis-Tucker and Sue Gramling, draftspersons, Stephen K. Hutchinson, field supervisor; Ellen A. Dugan, crew chief; Robert C. Hobson, Jr., crew chief; Jacki Henderson, secretary; Joe Barton, crew member; Diana Haleman, crew member; David L. Prewett, crew member; Julie Riesenweber, crew member; and Jeffrey Deck, crew member.

Administrative support was provided by Hugh Ward, Vice President of ECI; Dr. S. Alan Skinner, Director of Anthropology; LeAnne Baird, architectural historian; Leslie Orlowski, staff archaeologist, Linda Wilmore, project coordinator; Dr. Allen Faust, editor; and Linda Holder, Tammy Brown, Chris Corgill, and Louanne Ward, word processors, all of the Dallas, Texas ECI office.

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We owe a special thanks to Dr. Frank Thomas, president of Stearns Company, for the insights he gave us into the history of the Stearns Company and the economic and industrial development of the Big South Fork area. Rev. J. C. Slaven of Revelo, Kentucky, who served as the last superintendent of the Blue Heron mine, provided useful information on mine operations.

Kay Morrow, head librarian, McCreary County Public Library, Whitley City, Kentucky, was extremely helpful in providing information on early historical research done in McCreary County and also provided information on the sources of photographs in the photographic exhibit on display in the library. The exhibit features many photographs of Stearns Mining Company operations including the tipple at Blue Heron.

Janice Nolan, Environmental Planning Division, Tennessee Department of Transportation, and Nick Fielder, staff historical archaeologist, Tennessee State Historic Preservation Office, were very helpful in providing information and copies of reports on bridges in the project area and on the inventory of Tennessee bridges. We would like to thank Clellon L. Loveall, engineer of structures, Tennessee Department of Transportation, for copies of bridge inspection reports.

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ECI also thanks the following property owners for talking to us about their property and allowing us to examine it: Poppie Blevins, Vince Corell, Everett Mason, Scott County Board of Education, the United States Forest Service, John L. Mason, Ted Q. Wilson, Jess Corell, M. P. Estes, Noble Smith, Roscoe Kidd, Kirby King, George Burke, Joe Simpson, Paul King, Stearns Coal and Lumber Company, Charles Rudy Slaven, Robert Tapley, Harold Thomas, Oscar Blevins, Dessie Blevins, George Blevins, Clara Sue Blevins Campbell, Jesse C. Terry, Jerry Clark, Robert T. Beaty, Taft Story, Jay Davidson, Mildred Foster, Dorcia W. Foster, Ralph M. Burke, James L. Terry, Robert A. Hammond, White Pine Baptist Church, Donald Sexton, Zula Duvall Watters, James Elmer Terry, Laura Burke, Luther Thompson, Shriners' Hospital, Hazel Hancock, Terry Fry, Elgin P. Kinter, Paul Lee, Garfield Blevins, Ernest Whittenburg, Clyde Smith, John Harvey Bowen, William D. Hardeman, Eugene Stewart, Cecil Stewart, Maxine Ellis Loudin, Alonzo Wesley, Northumberland Corporation, Raymond Rosenbaum, Roger E. West, Argie Acres, George B. Conatser, Charles M. Whitehead, W. H. Swain, Delmer Shoemaker, Kennedy Reed, Robert E. Stephens, Evans Hoover Keith, J. B. Worley, Lander Maxwell, Carolyn Troxell, Lester Maxwell, Hobart Perry, Robert Watson, Nancy Suzie Watson, Howard Stephens, Harvey Watson, Mrs. Silas Ross, James Cleo Wilson, Luster Taylor, Alfred King, Roger Joseph Monroe, Lloyd King, Bank of McCreary County, and Joe Jackson.

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I. INTRODUCTION

The study described in this report is an inventory and evaluation of architectural and engineering resources of the Big South Fork National River and Recreation Area (BSFNRRA) in the Cumberland Plateau region of eastern Kentucky and eastern Tennessee. The BSFNRRA was authorized by Section 108 of the Water Resources Act of 1974 (P.L. 93-251), as amended by Section 184 of the Water Resources Development Act of 1976 (P.O. 94-587). This study was conducted in compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended), 36CFR800 (Protection of Historic and Cultural Properties), Executive Order 11593, the National Environmental Policy Act of 1969, and Engineering Regulation 1105-02-460 (33CFR305).

Inventory of architectural and engineering resources was conducted during December 1980 and January and February 1981 by Environment Consultants, Inc. (ECI) through their regional office in Lexington, Kentucky. Slightly over 130 person-days of field effort between December 2, 1980 and February 13, 1981 were spent documenting architectural and engineering structures in the BSFNRRA. Field workers visited the sites of 273 buildings which were indicated on U.S.G.S. 7.5 minute topographic maps dating between 1952 and 1955 and which lay within the boundaries of the BSFNRRA as indicated on National Area Plan maps. Engineering resources also were identified by examination of topographic maps, and consisted of 21 structures. Four additional engineering structures lying outside the BSFNRRA project boundary were added to the inventory at the request of the Corps of Engineers because of the possibility of adverse impact under some proposed alternative development plans for the Oneida and Western Railway roadbed. Thus, a total of 25 engineering resources was inventoried and evaluated.

The BSFNRRA project boundary encompasses approximately 123,000 acres (Figure 1.1), 55,700 of which are located within the Big South Fork River "gorge" and 67,300 of which are located on the adjacent Cumberland Plateau. The BSFNRRA is characterized by very rugged terrain and lies northwest of Knoxville, Tennessee, in southeastern Kentucky and northeastern Tennessee. The area consists of portions of Scott, Fentress, Morgan, and Pickett counties in Tennessee, and McCreary County in Kentucky. Jamestown and Oneida, Tennessee, and Whitley City and Stearns, Kentucky, are the nearest towns. The Big South Fork is the third largest tributary of the Cumberland River, with a drainage area of 1,382 square miles (Figure 1.2). Roughly triangular in shape, the basin has a base width at the southern end of about 45 miles and a length of roughly 60 miles. The National Area comprises about 14 percent of the Big South Fork basin. Elevations in upland areas adjacent to the river gorge reach as high as 1,700 ft above mean sea level (MSL) with the average being approximately 1,400 ft. The Big South Fork has an elevation of approximately 710 ft MSL where it exits the northern boundary of the National Area in McCreary County.

The inventory and evaluation of architectural and engineering resources was carried out under a research design with three fundamental parts:

1. Description of architectural and engineering resources;
2. Identification of the environmental and industrial context of these resources; and
3. Explanation of resources within an ecological and industrial framework.

The execution of the project required a coordinated multidisciplinary study of both the architectural and engineering resources of the National Area. Both research

orientation and management goals required an assessment of the significance of the resources based upon not only WHAT they are, but also WHERE they are and WHY they are there. While the "what" question was effectively addressed by drawing upon architectural and engineering history, the "where" and "why" questions required additional input from anthropology, folklore, history, demography, and geography. Another consideration in the investigative effort was the possible interpretive value the resources might have for visitors to the BSFNRRA. Prior to the initiation of field work it was hypothesized that the values of the resources for visitor interpretation lay more in their ability to communicate mountain life and culture and the important role of industry in the development of this National Area, than in their importance as architectural and engineering landmarks. The results of this investigation strongly reinforced that opinion.

Fortunately, good weather conditions prevailed throughout the survey period. The fall of 1980 was unusually dry, which contributed to better than usual road conditions. Mudholes were relatively shallow, seldom exceeding 18 inches in depth, and water levels in the Big South Fork River and North White Oak Creek were low enough to permit fording by four-wheel drive vehicles. Snow and ice were problems only during the second phase of architectural work (early January) when ice along Leatherwood Ford Road made driving conditions hazardous. While these weather conditions were occasionally bothersome, they did not prevent study of the buildings or engineering sites. All of the survey was conducted using four-wheel drive vehicles because little paved road exists in the project area.

Work during the fall and winter proved advantageous because vegetational obstruction of abandoned building sites was minimal, and photographic conditions were much better than during other seasons of the year. However, leaf litter obscured archaeological remains at a number of former building sites (less than 2,000 acres of the 123,000-acre National Area is cleared land). In many locations, previously cleared farmsteads had reverted to mixed deciduous forest or nearly pure stands of young pines, making precise location of building sites difficult without shovel testing.

Most of the tracts investigated remained in private ownership at the time the field survey was conducted. More than 100 hours were devoted to obtaining landowner permission for measurement and photography of buildings in the National Area. Access was denied by only four landowners; however, it was possible in three of the four cases to observe buildings on these parcels from nearby public roads. The denied access has not resulted in the omission of any significant buildings from the assessment, and Office of Archeology and Historic Preservation or the equivalent National Architectural Engineering Record (OAHP/NAER) forms have been prepared for buildings on those tracts which could be reasonably viewed from public roads.

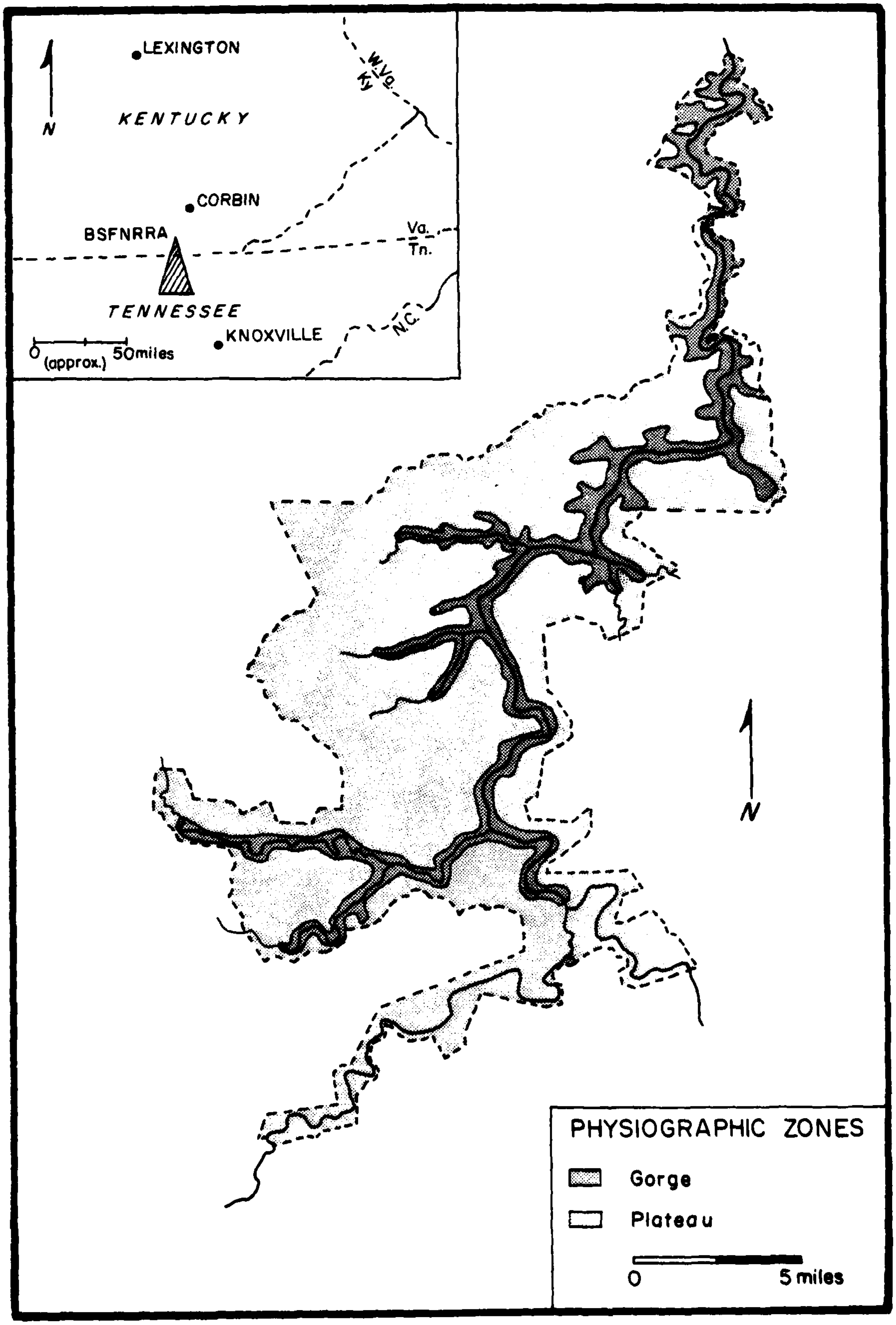


Figure 1.1 Map of physiographic zone and project location, Big South Fork Cumberland River.

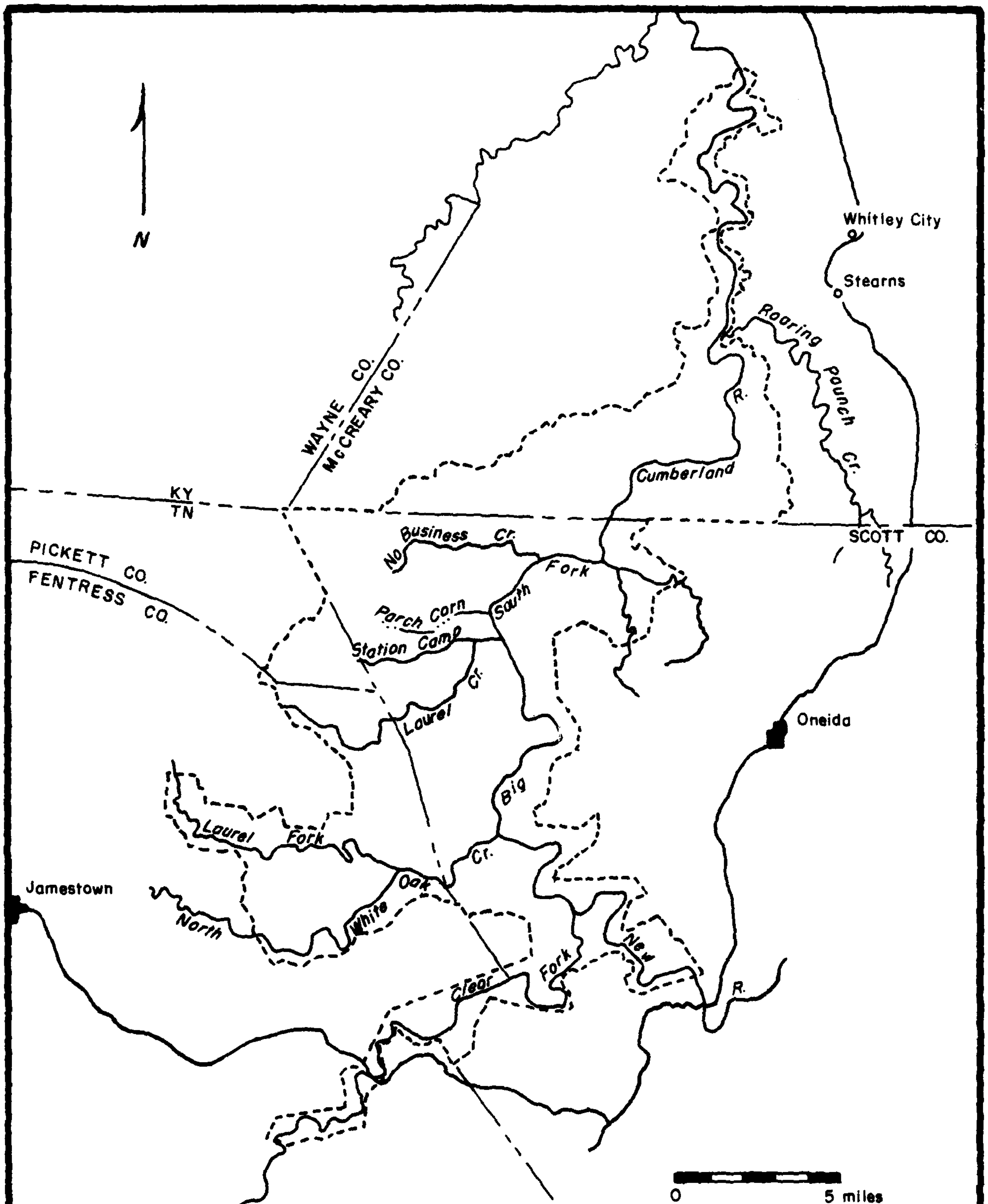


Figure 1.2 Map of Big South Fork Cumberland River and its major tributaries.

II. ENVIRONMENTAL AND HISTORICAL BACKGROUND

A. REGIONAL ENVIRONMENT

1. Physiography

The Big South Fork National River and Recreation Area is located in Fentress, Scott, Pickett, and Morgan Counties in north-central Tennessee and McCreary County in southeastern Kentucky, encompassing a total area of approximately 123,000 acres. This area occupies parts of the Cumberland Plateau and Cumberland Mountain sections in the southern part of the Appalachian Plateau Province (Thornbury 1965). Undulating to rolling uplands typify the northwestern portion, but intensely dissected topography marked by prominent escarpments with summits of 1,700 ft occurs along the Big South Fork and its tributaries forming a number of deep narrow valleys and ridges in the southeastern section (Safley 1970; USCOE 1976).

2. Geology

The terrain of the area is underlain primarily by bedrock of Pennsylvanian age predominated by flat-lying sandstones and shales of carboniferous sediments. Smaller amounts of siltstone, conglomerate, and coal are present with limestone restricted to the lowest exposures of Mississippian rocks. Because the geology of the Cumberland Plateau evolved separately in Tennessee and Kentucky, the inset table below summarizes the relationships of stratigraphic groups in the Tennessee portion with those formations found in Kentucky (Pomerene 1964; Miller 1974).

Geological Age	Kentucky Formation	Tennessee Group
Middle Pennsylvanian		Cross Mountain Vowell Mountain Redoak Mountain
	Breathitt	
		Graves Gap Indian Bluff Sladestone
Lower Pennsylvanian		Crooked Fork
	Lee	Crab Orchard Mountains Gizzard
Upper Mississippian	Pennington	Pennington

3. Hydrology

The Big South Fork basin, the third largest Cumberland River tributary, drains 1,382 square miles, of which the National Area comprises 195 square miles. This portion of the watershed includes the Big South Fork River and its three main tributaries: Clear Fork, New River, and Little South Fork. The upper reach of the Big South Fork flows through the Cumberland Mountains, while the lower course winds through tortuous canyons in the Cumberland Plateau. Almost all of the major streams and even many smaller unnamed tributaries maintain permanent rather than intermittent annual flow regimes. Ground water is confined to the interconnected joints, cracks, and bedding

planes in the highly dissected mesas, capped by resistant Pennsylvanian sandstone and conglomerate (USCOE 1976).

4. Soils

Soils in the study area are derived chiefly from the sandstones and shales comprising the main area of underlying bedrocks as well as the limestone and alluvium of the main gorge bottom. The soils of the Tennessee part of the basin belong to the Ramsey-Hartsells-Stony Association and are characterized as moderately deep, well-drained, gently sloping plateau soils; and deep to shallow, well-drained, very steep stony soils and rock outcrops in mountain gorges which are acidic and have a low natural fertility. Three soil associations are indicated as occurring in the Kentucky portion of the project area: Tate-Trappist, Tate-Clymer-Dekalb, and Tate-Shelocta. These associations are well-drained, moderately deep to deep, highly acidic and have moderate fertility (USDA 1966; Byrne et al. 1970).

5. Climate

The Big South Fork basin is located in a humid mesothermal climatic regime typified by mild winters and moist, warm to hot summers. Average annual temperature is 55° F and average annual precipitation is 51 inches. In general, locations on the Cumberland Plateau have lower average seasonal temperatures and higher annual precipitation than do those at lower elevations in adjacent parts of eastern Kentucky and Tennessee. Average maximum temperatures are highest in July (86.9° F) and lowest in January (47.5° F). The maximum temperature recorded in the basin was 104° F in June and the minimum was -20° F in January. Moist air from the Gulf Coast region is brought into the area by prevailing winds from the south and southwest. Precipitation is distributed throughout the year with a normal monthly minimum of about 3.4 inches (October) and a normal monthly maximum (March) of nearly 6 inches. Flooding is most likely from December through March when migrating storm systems bring high intensity rains. Summer thunderstorms can also result in local flash flooding. Snowfall, averaging 17 inches per year, occurs intermittently in the basin, and seldom remains on the ground for more than a few days. However, microclimatic conditions do exist and vary greatly between the summits of interstream areas and valley floors (USCOE 1976).

6. Vegetation and Wildlife

The vegetation in the study area resembles an intermediate in composition between well mixed mesophytic and oak-hickory of the Western Mesophytic Forest Region (Braun 1950). Forest covers 84 percent of the basin which is typified by six distinct vegetative communities: 1) sycamore-river birch; 2) sugar maple-beech-yellow birch; 3) hemlock; 4) mixed oak; 5) mixed pine; and 6) agriculture. The flat alluvial plains and steep slopes adjacent to the river are characterized by the sycamore (Platanus occidentalis)-river birch (Betula nigra) community along with other mesic species: green ash (Fraxinus pennsylvanica), sweet-gum (Liquidambar styraciflua), box elder (Acer negundo), etc. An upland community of infrequent occurrence is the sugar maple (Acer saccharum)-beech (Fagus grandifolia)-yellow birch (Betula lutea), which is also referred to as the mixed mesophytic forest, the northern hardwood forest, or the beech-maple forest. These tall and columnar canopy trees also may include other species such as tulip poplar (Liriodendron tulipifera), red maple, and basswood with an understory composed chiefly of big leaf magnolia, redbud (Cercis canadensis), dogwood (Cornus florida), and striped maple. The Canadian hemlock (Tsuga canadensis) can be found along streams in cool moist coves and ravines with a dense shrub layer of rosebay (Rhododendron maximum). Deciduous trees with broad crowns dominate the mixed oak

forest canopy with white oak (Quercus alba) being the most abundant of the recognized 16 oak associations (i.e., northern red oak, scarlet oak, and rock chestnut oak) and characteristic of steep ridges and slopes. A well developed understory and shrub layer vegetation consists of sassafras (Sassafras albidum), American holly (Ilex opaca), chestnuts, hickories, and mountain laurel (Kalmia latifolia). Pine communities within the basin are best developed in areas adjacent to the gorge. On the summits of these mesa-like formations, Virginia pine (Pinus virginiana) often mixed with shortleaf pine (Pinus echinata) and some white pine (Pinus strobus) is dominant along with mountain laurel, sourwood, teaberry (Gaultheria procumbenus), and box huckleberry (Gaylussacia brachycera). Much of the land within the projet area is unsuited for agriculture because of the steep slopes in the river gorge, thin soils on the plateau, rapid runoff, and only moderate soil fertility (Safley 197[illegible]; USCOE 1976). However, the various forest trees provide a valuable source of lumber for home building and other types of construction.

The megafauna of the study area is typical of the mixed mesophytic forest complex. Main game species include the white-tailed deer (Odocoileus virginianus), gray squirrel (Sciurus carolinensis), ruffed grouse (Bonasa umbellus), turkey (Meleagris gallopavo), bobwhite (Colinus virginianus), and eastern cottontail (Sylvilagus floridanus). Due to the rich and extensive forest habitats, a diverse wildlife of amphibians (42 species), reptiles (40 species), birds (250 species), and mammals (56 species) have been reported within the Big South Fork Basin (USCOE 1976).

Aquatic life presently found in the Big South Fork River and its tributaries consists of a wide variety of organisms. Sixty-two species of fish are known to occur in this section of the watershed with channel catfish (Ictalurus punctatus), walleye (Stizostedion vitreum), muskellunge (Esox masquinongy ohioensis), white bass (Morone chrysops), rock bass (Ambloplites rupestris), *smallmouth* bass (Micropterus dolomieui), largemouth bass (Micropterus salmoides), longear sunfish (Lepomis megalotis) and three species of trout as the more important game species. Various groups of herpetofauna, molluscs, and ubiquitous wetland species (i.e., beaver, raccoon, muskrat, oppossum, herons, phoebes) also are found throughout the study area (Comiskey and Etnier 1972; USCOE 1976).

B. EARLY HISTORY AND SETTLEMENT

The earliest transportation routes through the Big South Fork area were Indian trails. Figure 2.1 shows three major trails that Meyer (1928) recorded crossing through the National Area. Early white settlers probably followed these Indian trails into the Cumberland Plateau region. The Tennessee River, Ohio, and Great Lakes Trail began at the Tennessee River near Chattanooga, and ran north to the junction of the North and South Forks of the Cumberland River near Burnside, Kentucky. One side branch of this trail traveled west from Whitley City and Stearns, and continued to Wayne County, Kentucky. Another branch trail began at Winfield, Tennessee, and went west to Wayne County and east to Bear Creek. Meyer quotes L.E. Bryant of Roberta, Tennessee, in a letter written to him concerning the Tennessee River, Ohio, and Great Lakes Trail:

> The first land patents were along this trail - never any distance from it for the first 25 to 50 years, pioneers often building their homes along the trail itself. It was the only practicable route. The settlers moved their droves of stock along this road; later it became a wagon road and finally along its side came the railroad. It was dry and open even in wet weather. It followed the ridges and also gave a more level route (Meyer 1928:844).

Indian camp sites have been identified on the tops of ridges all along the trail and at every cross ridge. Axe marks were seen on trees along a side route from immediately

north of Stearns to the South Fork River before the area was timbered (Meyer 1928:843).

The East and West Trail left Anderson County, Tennessee, crossed the Big South Fork just north of Rugby, and traveled through the site where Jamestown, Tennessee, now stands. A third trail, the Chickamauga Path, left the East and West Trail at Jamestown and went east along White Oak Creek to Glenmary, Tennessee, where it met the Tennessee River, Ohio, and Great Lakes Trail. Indian settlements were located at Jamestown and along White Oak Creek. An Indian camp site has been identified in Scott County, Tennessee, along the East and West Trail. There were no permanent Indian settlements in the Cumberland Plateau area. The region was claimed as hunting grounds by the Shawnee, Chickasaw, Choctaw, and Cherokee. This pattern continued even after white settlers entered the area.

The first exploration of southeastern Kentucky was carried out by Dr. Thomas Walker of Virginia in 1750. Walker was a representative of the Loyal Land Company, a land company chartered by the King of England. Walker crossed the Cumberland Gap into Kentucky and followed the Cumberland River west. On the upper bottomlands of the Cumberland River, Walker and his men built one of the earliest pioneer structures in the region. Walker left the Cumberland, traveled to the Red River, the Big Sandy, the Kentucky River, and finally crossed the Cumberland Gap back into Virginia (Perrin, et al. 1887; Johnston 1898).

The earliest White men in the Big South Fork area were "long hunters." The long hunters came to the new territory to hunt and trap the abundant deer, elk, buffalo, and bear. These men supposedly entered the region in 1769-1770, following Indian trails from the Cumberland Gap (Sanderson 1958). In 1769, a party of long hunters from North Carolina crossed the Cumberland Gap and followed the Cumberland River downstream to the Big South Fork. They followed the Big South Fork to a meadow (named Price's Meadow and later Price's Station) about six miles from Monticello in Wayne County, Kentucky (Verhoeff 1911; Collins 1874). One of the first permanent settlers in Scott County, Tennessee, was a long hunter named Hunt, for whom the town of Huntsville is named.

Early Kentucky and Tennessee historians enumerate a long list of early pioneers—hunters, trappers, and explorers who followed various Indian trails across the Cumberland Gap and into southeastern Kentucky and northeastern Tennessee between 1760 and 1775 (Collins 1874; Perrin et al. 1887; Haywood 1923; Johnston 1898).

In 1775, the Treaty of Sycamore Shoals was signed. Colonel Richard Henderson and the Cherokee Indians met at the Watauga settlement in eastern Tennessee to sign the treaty. Henderson purchased from the Indians all the land south of the Ohio River between the Cumberland and Kentucky Rivers and all the lands drained by the tributaries of the Cumberland River. The total land involved was approximately three million acres (Kincaid 1947).

Daniel Boone was included in the negotiations with the Cherokee, and after the Treaty was signed, Henderson hired Boone to build a road from the Watauga settlements to the new territory. This became known as the Wilderness Trail. Boone and thirty men blazed a trail from the Watauga River in east Tennessee to Mocassin Gap where it met old trails leading to the Cumberland Gap. From the Cumberland Gap, it forded the river and followed it down to Flat Lick. Here Boone left the main trail and followed an old buffalo trace to the Kentucky River where Fort Boonesboro was built. The 200-mile Wilderness Trail was reportedly built in three weeks. This road (later widened for

wagon travel) was the principal overland route to Kentucky and northeastern Tennessee from 1775 to 1818 (Verhoeff 1911; Kincaid 1947). In 1778, the State of Virginia declared Henderson's claim null and void and granted only 200,000 acres to his Transylvania Company.

The Big South Fork area was not settled as early as other areas in central Kentucky and eastern Tennessee. The difficulty of traveling over mountain trails on foot, on horseback, and in Conestoga wagons was prohibitive. The pioneers preferred the Holston and Watauga settlements in eastern Tennessee and the Cumberland settlement in middle Tennessee because they were accessible by water route--a cheaper and easier route than traveling across the Cumberland Mountains. Land speculation during this time period also caused increased Indian hostilities. A number of Indian battles were fought in Kentucky and Tennessee.

After the Revolutionary War, permanent settlement of the area began. Treaties with Indians and the issuing of land grants opened the region for colonization. Some of the earliest settlers in the Big South Fork area had land grants which were given as payment for services in the Revolutionary War by the States of North Carolina and Virginia. For example, Richard Harve Slaven, a Revolutionary War soldier, was granted a tract of land in Scott County, Tennessee. He came by the Monticello Trail and took land from the mouth of Bear Creek to the mouth of Parch Corn Creek, where he is buried (Sanderson 1958). Some of these settlers had land grants from the State of Tennessee, which was admitted to the union in 1796. Other settlers had no land grants. They simply chose a tract of land, built a homestead on it, and claimed squatters right to it.

The Hopewell Treaty, signed in 1785, made available all the land in the southern half of the Cumberland River drainage. The Butler and Walton Treaty of 1798 opened much of the land north of the Emory River. Between 1803 and 1853, the Tellico Land Grants were issued, and land around the Big South Fork and Little South Fork Rivers was deeded to individual settlers.

The project area experienced relatively late settlement for several reasons. The rugged physiography, the poor soil fertility, and the fact that large tracts of land were not arable discouraged large-scale agricultural settlement.

Settlement in the BSFNRRA was similar to that in the Eastern Mountain region. Small homesteads were scattered along the valleys of the Big South Fork and its major tributaries (Lewis, Johnson, and Askins 1978). The relatively sparse population was dispersed along the stream valleys in small groups or individual households (Duda 1980). These areas were most suitable for the economic pursuits of the people. Initially, these settlers came to hunt, fish, trap, and trade, but by the late 1800s they had cleared the virgin timber stands and were farming both the ridge tops and the bottomlands. Basically subsistence farmers, these early settlers also depended upon hunting and trapping for meat, fur, leather, and trade goods. Thomas Hughes (1881), the founder of the English colony of Rugby, Tennessee, described his neighbors in the Big South Fork area as mostly poor men who lived in small log huts and cabins with a few wealthier farmers scattered through the area. The mountaineers

> ...own a log cabin and minute patch of corn round it, probably also a few pigs and chickens, but seem to have no desire to make any effort at further clearing, and quite content to live from hand to mouth. They cannot do without hiring themselves out when they get a chance...(Hughes 1881:63).

Hughes also tells how these "natives" spent much of their time hunting, especially for squirrels and opposums. Their major crops were corn, hay, and garden vegetables; livestock consisted of hogs, sheep, and cattle (Hughes 1881). Information about the Tellico Land Grants and ethnographic accounts indicate that these first farms in the area ranged between 100 and 200 acres (Jillson 1925).

The majority of the early settlers in the Upland South region were Scotch-Irish and German immigrants. Newton (1974) feels that the settlement expansion into lands west of the Allegheny-Appalachian Mountains was a direct result of increased Scotch-Irish and German immigration into the United States. The earliest settlers in the BSFNRRA moved into Kentucky and Tennessee from the eastern states of North Carolina, Virginia, and Pennsylvania. The Scotch-Irish, English and German heritage is reflected to some extent in the folk architectural styles identified during the architectural survey of the area (see Section IV for a detailed discussion of the folk architecture).

According to Caudill (1963:19) the earliest homes of pioneers in eastern Kentucky and Tennessee were often in rock shelters, with the entrance walled off. Later, pole cabins were built. These cabins had mud floors, board roofs, and mud chinked walls. Improvements over time consisted of split log floors, hewn log walls, the addition of lofts or second stories, and eventually the construction of chimneys (Caudill 1963:19-20).

An important commodity in the early pioneer days was salt, which was necessary for the preservation of food. When supplies from England were cut off after the Revolutionary War, salt was evaporated out of sea water on the east coast. However, the cost of transporting salt over the mountains made it very expensive and difficult to obtain in the interior (Verhoeff 1917). Salt manufacture became an important industry in Kentucky and Tennessee in the early nineteenth century.

In 1813, the Kentucky Legislature began issuing cheap land grants in Wayne and Pulaski counties to encourage the discovery and manufacture of salt. Settlers who held title to these grants did not have to pay for their land until they had discovered and manufactured 1,000 bushels of salt. The cost of the land was set at ten cents per acre (Johnson 1939). Initially, sources of salt brine were springs with basins rich in salt called "licks." Verhoeff (1917:149) claims that the Indians taught the pioneers of Kentucky how to manufacture salt from the brine, and the proximity of one of these springs was a factor in deciding where to settle.

Manufacture of salt from the springs was a simple affair. Pots and kettles were filled with brine dipped out of the spring. These were then hung over an open fire in the cabin until the water evaporated and left the salt in the pot (Verhoeff 1917:149). This process was slow and inefficient, so the pioneers developed crude furnaces. The brine was collected and transferred to big copper kettles especially made for salt manufacture. Ten or twelve of these kettles were set out in a trench. Clay was used to stop up the interstices betwen the pots and a fire was kept burning at either end of the trench. However, the cost of this operation and the low salt content of the brine prohibited profitable exportation of the salt (Verhoeff 1917:149). Finally, the furnaces were enlarged to accomodate sixty kettles at a time. A stronger brine was obtained by boring or drilling into new brine deposits. A system was set up where brine was pumped out of deep wells into troughs which carried it directly to the kettles in the furnace. This system proved profitable, and salt was shipped to Nashville and exchanged for money or other goods (Verhoeff 1917). Salt manufacture was not always a successful venture because of difficulties in transportation to market and with the strength of the brine.

The Beaty Salt Works appeared on an 1863 map of Kentucky and Tennessee at the intersection of Roaring Paunch Creek, Big South Fork River, and Bear Creek (Simpson 1863). The Beaty Salt Works were started in 1817 when John Francis and Richard Slavey of Wayne County, Kentucky, and Stephen T. Conn of Virginia began boring and exploring for salt water on the Big South Fork opposite the mouth of Bear Creek. They had claimed 1,000 acres in Wayne and Whitley Counties based on acts of the Kentucky Legislature which were passed to encourage salt manufacture. Salt was manufactured at the works until 1840 (Johnson 1939). However, in 1818 Marcus Huling and Andrew Zimmerman, while drilling for salt with a spring-pole rig and a wooden bit, struck oil. They had drilled to a depth of 200 feet and hit a pool of oil. The oil ruined the salt works and neighbors complained of the oil that flowed into the Big South Fork River. Huling attempted to market the oil and, with much difficulty, managed to export 2,000 barrels to Europe. It also was marketed in the Southeast as patent medicine. This Beaty Oil Well, as it was later named, was the first oil well in the country, and Huling's attempt was the first to commercially produce and sell oil. The well was abandoned in 1820 and Huling moved on in search of more salt (McCreary County well (1818) cited by General Assembly).

Mining for saltpeter in rock shelters was another early industry in the National Area. The saltpeter was used for making gunpowder for flintlock rifles. Sanderson (1958) identified Peter Cave Hollow in Scott County, Tennessee, as a saltpeter mining operation. An archaeological survey in the BSFNRRA discovered the remains of a niter mining site in a rock shelter on Station Camp Creek in Pickett County (Wilson and Finch 1980). Saltpeter mining was especially important during the Civil War when the Confederate States relied on Virginia, Tennessee, and secretly on Kentucky for their supply of niter (Webb and Funkhouser 1936). Thousands of acres along the Big South Fork were acquired for the purpose of drilling for saltpeter between 1812 and 1824 (Kinne 1975).

Oil, coal, natural gas, and iron ore were available in varying quantities throughout the Big South Fork basin. During the first half of the 1800s, limited coal mining was conducted for use in iron ore processing. The dangers and expense of transporting the coal out of the area by water made the enterprise unprofitable. However, by 1860, according to data from the Census of Manufacturers, coal mines were operating in Pulaski and Whitley Counties, Kentucky (Duda 1980). In Tennessee, coal seams were worked on Buffalo Creek, White Oak Creek, and Crooked Creek (Killebrew 1876). In addition, coal was abundant on No Business Creek, Laurel Creek, Clear Creek, and many other creeks in the area. Killebrew also describes other petroleum resources in Scott and Fentress Counties, Tennessee.

Lumbering also played an important part in the development of the area. Mixed mesophytic forests dominated the project area when the first settlers arrived and still do at the present time. Based on an environmental analysis, less than 2,000 acres of the 123,000-acre National Area is cleared at this point in time. The remainder consists of various forest types. Almost all of the National Area has been logged on one or more occasions, and virgin timber in the area is, for all practical purposes, non-existent.

The earliest settlers in the Big South Fork area cleared and burned small areas of the virgin forest of oak, walnut, poplar, chestnut, and pine to make room for their houses, barns, and crops. These settlers used the forest products in a variety of ways. They used the wood for staves, building material, and firewood and also gathered tanbark (small pieces of bark rich in tannin and used for tanning) to sell (Arnow 1963). A tanbark mill in Huntsville, Tennessee, which was in operation before the Civil War, was a local market for tanbark (Sanderson 1958).

The timber resources of the Cumberland Plateau did not become centers of the lumbering industry until the late 1800s (Arnow 1963). Beginning in 1880, the virgin forests were subjected to extensive exploitation because of the demand for mine timber and railroad cross-ties. The cut timber was floated downriver to market at Burnside, Kentucky until 1880 when construction of the Cincinnati Southern Railway was completed. Sawmills were operating in Pulaski, Whitley, and Wayne Counties, Kentucky, by 1860 (Duda 1980). Arnow (1965) includes cutting timber for export (as well as farming and distilling alcoholic liquors) in the major industries of the Cumberland Plateau during the nineteenth century. Tar and turpentine were extensively manufactured in the large yellow pine forests along White Oak Creek and Clear Fork in the 1800s (Killebrew 1876; Hughes 1881).

The decades between 1880 and 1930 were years of transition and change for inhabitants of the Big South Fork area. Many of the changes that occurred in the Appalachian region as a whole during this time period are also relevant to the Big South Fork area (Lewis et al. 1978). The introduction of railroads, development of towns and villages, and increasing industrial employment characterize the post-1880 period. Agriculture declined as an economic pursuit as coal and timber companies purchased large tracts of land. By 1930, there had been a shift from subsistence farming to part-time farming and part-time wage labor. The region became integrated into the national economy and much of the land was owned by absentee owners.

Between 1900 and 1930, the Stearns Company and the construction of the Kentucky and Tennessee Railway and the Oneida and Western Railway provided new opportunities for wage labor. Informant interviews with people in the project area indicate that most farmers had to adapt to the changing economic conditions. Small farm acreages and the low productivity of the land made it necessary for most farmers to supplement their income with wage work in the lumbering, mining and railroad industries (Duda 1980). However, census data and ethnographic accounts report that farmers continued to farm their land, at least on a part-time basis, despite the new wage work available to them.

Small-scale subsistence farming was the dominant type of farming in the Big South Fork area. Commercial farming never became an important industry because a variety of land productivity and marketing problems suppressed profitability. In the 1930 Census of Agriculture, about 66 percent of the value of all farm products produced in McCreary County, Kentucky, and Scott and Fentress counties, Tennessee, was used by the farm household. The other 34 percent was sold or traded (Duda 1980). Corn, forage crops, and garden vegetables remained the major crops and were used to feed the livestock and the farm family. Cattle, hogs and chickens were raised for home use as well as for sale.

Information from the Census of Agriculture for 1900 to 1930 shows a general decline in crop and livestock production in McCreary, Scott, and Fentress counties (Table 2.1). Chickens and dairy cattle both increased in production from 1900 to 1920. Because comparable information is not available for 1930 due to changes in census documentation, it is not known whether this trend continued. Data on McCreary County is only available for 1920 and 1930 because it was formed from parts of other counties in 1912. The number of farms in McCreary, Scott, and Fentress counties increased slightly in 1910 and 1920, but decreased again in 1930 (Table 2.2). The number of acres in farmland in the area has steadily decreased in time and consequently so has the average number of acres per farm. This overall decrease in the number of farms and the size of farms may be due to a combination of factors such as the purchase of large tracts of land by Stearns and other coal and lumber companies, the introduction of wage labor opportunities, and perhaps the inheritance of continually

smaller parcel of lands in succeeding generations of farmers. The decrease in acreage per farm and number of farms reinforces the belief that small-scale subsistence farming rather than commercial farming was the dominant type of the area.

After 1930, a large-scale migration occurred from the Big South Fork project area. Communities such as No Business and Station Camp, which were primarily farming communities, saw a rapid decline in population after 1930. This is evident from a comparison of buildings noted on a series of 1930s maps and on 1950s topographic maps. Informant interviews with area residents confirm this (Duda 1980).

At the time when land acquisition began in the project area, farm size had decreased substantially from the 1930 size. Working with U.S. Army Corps tract maps and building locations from topographic maps and foot survey, it was possible to estimate average farm size in certain communities for the 1950s. Tracts that did not contain standing buildings were not included because it would have been difficult to estimate farm dimensions. Very large tracts of land that appeared to be the result of a consolidation of several holdings also were discounted. Table 2.3 gives the results of this analysis. This information, combined with ethnographic and census data, indicates that farming declined significantly after 1930.

Although information about farming in the BSFNRRA is not available in great detail, a general trend can be seen throughout the area. The first settlers in the area were subsistence farmers and this pattern continued until the late 1800s. At that time, lumbering, mining, and railroad companies had a significant economic impact, bringing wage labor and new industries to the area. Although most farmers continued to work their land from 1900 through 1930, they did participate in part-time wage work. After 1930, there was an abandonment of the area, especially along the tributaries of the Big South Fork and in the Big South Fork gorge area.

In 1903, the Stearns Company opened a double cut electric-driven band mill, one of the first ones erected in the United States. Construction of the Kentucky and Tennessee Railroad in 1902 complemented the construction of the mill. Booms were constructed along the Big South Fork River below the mouth of Roaring Paunch Creek for catching and holding logs which were to be loaded onto railroad cars and taken to the new mill to be sawed. At the same time, arrangements were being made to buy logs along the upper Big South Fork and its tributaries. Millions of board feet of lumber, secured by the Stearns Company, was milled in the company sawmill between 1903 and 1909 (Kinne 1975).

During 1923, 20,000 acres of timberland was acquired from the Kentucky and Tennessee property that had been under lease from Louis E. Bryant. In 1924, an extension of the Kentucky and Tennessee Railway was begun in Bell Farm, and gradually extended southwest along Rock Creek to East Jamestown for the purpose of starting new logging operations. The band mill at Stearns was overhauled, new machinery was added, and it started cutting lumber again in March 1926. In 1928, the peak year of lumber production for the Stearns Company, more than 18,000,000 board feet of lumber was manufactured at the mill (Kinne 1975). Extension of the railroad continued with branch lines moving further into the timber areas. Small logging camps were set up along the railroad extension. The workers lived in small cabins that were moved on railroad cars as the camps moved to new timber stands (Duda 1979). Wage labor for the Stearns Company timber holdings continued until the late 1940s.

By 1950, all of the Stearns Company holdings had been timbered and the forest resources almost completely depleted. The logging railroad into Tennessee closed in

1950, and the main line from White Oak Creek to Bell Farm was abandoned in 1952 (Kinne 1975). Stearns sold the surface rights to timbered land to the United States Forest Service and began contract lumbering (contracting with individuals to have specific tracts of land timbered) in other areas in the region (Duda 1980).

In Tennessee, with the construction of the Oneida and Western Railway in 1913, and subsequently a better way of transporting products to market, the timber resources along White Oak Creek began to be heavily exploited. Information about the location of mills in this area is sketchy, but at least three sawmills used the Oneida and Western Railway to transport their products in 1930. These are listed below.

- B.D. Shapero Lumber Mill, located at Jamestown, employed 75 men and produced 300,000 board feet of lumber per year.

- Stave and Lumber Mill, located near East Jamestown, employed 75 men and produced 1,000,000 staves per year

- Gernt Brothers Lumber Mill, located near Gernt, employed 75 men and produced 1,000,000 board feet of lumber per year (Woolrich 1934:19-20)

The extent of the exploitation of the forest resources in the Big South Fork area of Tennessee in the 1930s is evident from the fact that 75 percent of the timber marketed in Cincinnati and east was shipped by the Oneida and Western Railway and the Tennessee Central Railway.

The timber stands along White Oak Creek in Scott and Fentress counties, like the Stearns Company timber holdings, were logged out by the 1950s. Timber-related jobs began to decline in the 1940s, and by 1950 most of the sawmills in the area were no longer in operation. Reforestation of the entire Big South Fork area began in 1950, but its progress was slow. Large-scale contract lumbering has only begun in the last 8 to 10 years. The depletion of the forest resources, and the consequent loss of lumbering wage labor, has contributed to the migration of people from the Big South Fork area.

Manufacturing and service-related jobs have replaced farming and part-time wage labor as the predominant economic pursuit. In order for people in the Big South Fork area to pursue jobs in the industries, it was necessary for them to move to the larger towns and cities in the region. At the present time, very few subsistence-based farms are located in the BSFNRRA. The percentage of farm versus non-farm rural population has declined dramatically since 1950. The average farm size has increased significantly for the three county area (Scott, Fentress and McCreary) while the number of farms has decreased (Duda 1980). This would seem to indicate the introduction of commercial farming and the disappearance of subsistence farming from the Big South Fork area.

Until the first railroad was completed in early 1880, all goods manufactured and produced in the Big South Fork basin had to be shipped by river to market. Construction of the Cincinnati Southern Railway began in the 1870s through part of the Big South Fork area (Figure 2.2). By February 1880, the line was complete between Cincinnati, Ohio and Chattanooga, Tennessee. The line then was leased to the Cincinnati, New Orleans, and Texas Pacific Railway in October 1881. The State of Tennessee and the railroad brought attention to the potential for developing the mineral, agricultural, and timber industries in the area. The completion of the Cincinnati Southern provided an alternative to shipping products to market via the river system (Sulzer 1975). The railway also provided an opportunity for local people to sell timber from their land to the tie yards which opened along the line during construction.

In 1881, two coal mines were opened in Scott County which employed local workers and used the railroad to ship coal both north to Lexington and south to Georgia (Colton 1883). The railroad formed a main line from which other railroads branched out to exploit the coal and timber resources in the Cumberland Plateau. In 1884, a branch line was built from Flat Rock, Kentucky, to Barren Fork where the Barren Fork Mining and Coal Company (later the Eagle Coal Company) set up mining operations. Other mines were opened by Louis Bryant along the railway a few miles south (Perry 1979).

The opening of the Cincinnati Southern Railway began a new era of industrialization in the Big South Fork area. It provided new opportunities for wage labor in the area as well as a better way to market local products (Duda 1980).

With the advent of mass transportation systems in the late nineteenth century, a pattern of regional economic specialization and diversification ensued. Coal mining activities of the Stearns Coal and Lumber Company were limited to deep mining from the Big South Fork of the Cumberland River, north of the Kentucky-Tennessee border to Yamacraw, and then up Rock Creek. Coal mining communities associated with the Stearns Company included Barthell, Worley, Blue Heron, and Yamacraw. Lumbering activities of the Stearns Company were widely dispersed throughout the BSFNRRA. Camps were set up in Fentress, Scott and McCreary counties.

The Kentucky and Tennessee Railway provided access to coal mines along Rock Creek and Big South Fork, and a link to the Southern Railway. It also furnished a means of marketing McCreary County coal. A tie and lumber yard was established on Blair's Creek and probably at other locations, presumably providing ties for the tramroads and main lines of the Kentucky and Tennessee Railway.

The Oneida and Western Railway followed White Oak Creek from Oneida to Jamestown. Coal and lumber were shipped on the railroad, and several associated communities developed; among these were Zenith and Gernt.

The following sections of this chapter will recount the history of the Stearns Company, the Kentucky and Tennessee Railway and the Oneida and Western Railway.

C. HISTORY OF THE STEARNS COMPANY

The natural resources of southern Kentucky and northern Tennessee were exploited on a large scale beginning with the opening of the Cincinnati Southern Railway from Cincinnati to Chattanooga in February 1880. The railway line, also known as the "rathole" (Lanier 1974:20), was leased to the Cincinnati, New Orleans and Texas Pacific Railway (CNO & TP) in 1881. It served as the subsidiary's second district main line as well as a trunk line from which smaller railroads like the Kentucky and Tennessee Railroad (K and T) could move into primary resource areas.

The Stearns Coal and Lumber Company was the most important force shaping the economic and industrial development of the Big South Fork region. Any assessment of the Blue Heron tipple's significance must depend upon an adequate knowledge of the Stearns Company history. A selected summary of Stearns Company history based on documentary evidence and interviews with Dr. Frank Thomas, president of the Stearns Mining Company and the Stearns Coal and Lumber Company, is presented below. Five men have been Stearns Company presidents: Justus Smith Stearns (1902-1933); Robert Lyon Stearns, Sr. (1933-1939); John Edward Butler (1939-1949); Robert Lyon Stearns, Jr. (1949-1962); and Dr. Frank Thomas (1962-present).

Justus Smith Stearns (1845-1933), founder and first president of the Stearns Company, was born in Chautauqua County, New York, and followed his father into the retail lumber business at Erie, Pennsylvania. He married Paulina Lyon in Conneaut, Ohio, in 1869 and moved to Ludington, Michigan, in 1876. Stearns established the lumbering town of Stearns Siding in 1880, and opened up vast timber reserves in Michigan. Stearns was elected Secretary of State of Michigan in 1898. He held the post until he lost the Republican nomination for Governor of Michigan. Stearns organized the Stearns Salt and Lumber Company in 1898, and purchased the Ludington Electric Plant in 1900. In 1901, he built the Stearns Hotel, and in 1910 became president of the First National Bank and Trust Company of Ludington, Michigan. Other Ludington, Michigan, properties he acquired included: The Carrom Company (largest manufacturer of gameboards in the world at that time); Ludington and Northern Railroad; Stearns Motor and Manufacture Company; and Stearns Farm Lighting Plants. Stearns also held interest in timber lands in Michigan, Wisconsin, Washington, Florida, and later in Tennessee and Kentucky.

The prime consideration of Justus S. Stearns in coming to the Big South Fork region was timber, according to Dr. Frank Thomas. Stearns sent a Michigan land agent, W. A. Kinne, to the Big South Fork region in the 1890s to buy land. In 1902, Kinne acquired nearly 50,000 acres known as the "Big Survey" for Stearns in Scott, Fentress, and Pickett Counties in Tennessee. Kinne, as a representative for Stearns, negotiated the lease of 25,000 acres from Louis E. Bryant, a local developer and mining engineer, in the extreme southwest portion of Whitley County, Kentucky. The negotiations included the following three elements: construction of a railroad, opening of mines, and conversion of timber on lands. Mr. Bryant discovered the Worley coal seam after drilling the area's first core samples in the 1880s.

In the Spring of 1902, E. E. Barthell, a Nashville attorney, traveled the CNO & TP railway to Pine Knot, Kentucky, in order to meet a representative of Stearns. They rode on horseback to Hemlock Siding, site of the old Gum Tree Tie Yard, and drafted articles of incorporation for the Stearns Coal Company, the Stearns Lumber Company, and the Kentucky and Tennessee Railroad (K&T). The railroad was reincorporated as the Kentucky and Tennessee Railway in 1904 in order to expand its capital and extend the railroad.

Former high school English teacher and athletic coach John Edward Butler was appointed company superintendent in 1903. He later served as general manager, president, and chairman of the board for the Stearns Company.

The company town of Stearns, Kentucky, was built at the old Gum Tree Tie Yard, which was also the junction of the Kentucky and Tennessee Railway and the CNO & TP Railway. Lumber was sent from Ludington, Michigan, for the construction of houses and company Store Number 1. The sawmill in Stearns, built in 1903, may have been one of the first electrically driven band mills in the United States.

Louis E. Bryant assisted the Stearns Coal Company in opening Mine Number 1 at the new mining camp to be named Barthell (Table 2.4). Entries were "punched" into the coal seam, a wooden coal tipple erected, and houses started in anticipation of the coming railroad. Railroad construction began at Hemlock Siding on the CNO & TP Railway and proceeded westerly down Cooper Creek and Roaring Paunch Creek to Barthell near the Big South Fork River.

The first shipment of coal from a Stearns Coal Company mine was made on June 1, 1903, from Mine Number 1 in Barthell, Kentucky. A company store, post office, and

school were established soon after for the new mining camp. Mine Number 2 was opened approximately one-half mile west of Barthell in 1905. The Barthell mine contained high sulfur coal.

The evolution of the Barthell mining camp fits the "typical" model of Stearns mining camp development that was outlined by W. A. Kinne in 1929:

> Entries started, boarding house created, store built, dwellings begun, work on the erection of a tipple begun and a schoolhouse built as soon as possible. Often Sunday-school and church services would be held in the building before a teacher could be secured and school started (Kinne 1975:16D).

Railroad construction continued along Roaring Paunch Creek to the Big South Fork River. At this time, a change was made from the original plan of building the railroad up the Big South Fork River to the Stearns holdings in Tennessee. Instead, the railroad was turned north along the east bank of the river toward the mouth of Rock Creek. Mines Number 3 and 4 were opened at the new mining camp of Worley in 1905. A solid block containing 36 cubic feet of coal was taken to the Chicago World's Fair shortly after the mine entries were punched at Worley. The Worley mines became some of Stearns Coal and Lumber Company's highest producers by the late 1920s.

Mine Number 10 opened at Yamacraw with a concrete tipple as well as a store, school house, and dwellings. Yamacraw developed rapidly after the concrete railroad bridge near Rock Creek was completed in 1907. The 565-ft reinforced concrete arch bridge, spanning the Big South Fork River, was an achievement in railway civil engineering. It was the first of its kind to be built in the South. The bridge is still in use today.

While the company opened mines Number 10 and 11 at Yamacraw, an additional 30,000 acres was acquired westward along Rock Creek. The Rock Creek properties now were connected with the Stearns Company properties lying east of the Big South Fork River and with those lying in northern Tennessee, making an aggregate of over 100,000 acres. Development continued up Rock Creek to the camp at Oz, and another coal mine was secured at Paint Cliff.

Litigation had delayed mining at the Oz and Paint Cliff entries after the Stearns Company had purchased more than 1,300 acres. Stearns was unsure as to who actually controlled the mineral rights to the property. The Stearns Coal and Lumber Company reached a compromise with the contesting heirs involved in the litigation, and was then able to put the Oz and Paint Cliff mines into operation.

E. E. Barthell spent eight months of 1910 consolidating the Stearns Coal Company, the Stearns Lumber Company, the Stearns Salt and Lumber Company, and the Rock Creek Property Company into the Stearns Coal and Lumber Company. The new company comprised all of the Stearns interests in Kentucky and Tennessee except for the Kentucky and Tennessee Railway. The properties of the company at the time of the consolidation were located in two states and six counties. The lands alone took "nearly 200 miles of outside descriptive lines to identify them" (Kinne 1975:16D).

McCreary County, Kentucky, was formed in 1912 from portions of Pulaski, Wayne and Whitley Counties. Company officials rejected a proposal making Stearns the county seat. Stearns remained a company town as did the other coal mining camps.

The acquisition of several large tracts of timber land by the Stearns Company between 1923 and 1924 prompted the company to put the Stearns sawmill, idle since 1909, into operation again in 1926.

The Stearns Coal and Lumber Company had 2,000 employees in 1929, and produced nearly one million tons of coal from the company's mines, exceeding all output by an individual mining company in the state except the Ford Mine at Lynch, Kentucky. In March 1929, a flood caused by heavy rains and melting snow destroyed the mining camps at Comargo (not yet a Stearns mine), Worley, and Yamacraw. At least thirty houses were swept away and crashed into the Kentucky and Tennessee Railway's concrete bridge at Yamacraw. The bridge was not damaged, standing as a testimony to its engineering design and construction.

The Stearns Company punched a 3,200-foot tunnel through the mountain at Ice Camp Branch from the Paunch Creek side to the Big South Fork of the Cumberland River near Devil's Jump in anticipation of new mines along the Big South Fork (Kinne 1975:16D).

Robert Lyon Stearns, Sr. took over the Stearns Coal and Lumber Company when his father, Justus Smith Stearns, died in 1933. The younger Stearns, an accomplished illustrator and artist, was well versed in his father's business, having been in personal control of the Stearns Coal and Lumber Company from 1905 to 1919. He was secretary-treasurer of the company until his father's death, at which time he became president. R. L. Stearns, Sr. actually lived in Stearns, Kentucky, whereas his father was more of an absentee owner.

By 1937, the Stearns timber lands west of the Big South Fork River were nearly depleted, and a decision was made to sell 47,000 acres to the U.S. Government for the creation of the Cumberland National Forest. Stearns Coal and Lumber Company retained the mineral rights to the property.

John Edward Butler, general manager of operations for R. L. Stearns, Sr., developed the Blue Heron mining camp in the late 1930s. Mine Number 18 at Blue Heron, not the "big producer" that the company had expected it to be, produced only one-quarter million of the five million tons processed at the Blue Heron Coal tipple. The modern steel tipple, opened in 1938, is still standing.

Butler became president of the Stearns Coal and Lumber Company in 1939. He held the post during the coal industry boom brought on by World War II. He later served as president of the Kentucky Mining Institute and Southern Appalachian Coal Operators Association. He was director of the National Coal Association, Appalachian Coals, Inc., and numerous organizations identified with the coal industry.

Robert "Bob" Lyon Stearns, Jr. became president of the company in 1949 and was immediately faced with two potentially fatal market problems: loss of the railroad fuel market due to the conversion to diesel fuel; and loss of the domestic home and industry heating market due to the mass conversion to electricity, oil, and natural gas.

In the early 1950s, the railroad industry replaced coal-fired steam locomotives with oil and electric diesel engines. It is interesting to note that K & T continued to use steam engine locomotives as late as 1964. Blue Heron Mine Number 18 was closed in 1962 and the Oz Mine, Number 16-2, closed in 1966. The Stearns sawmill burned, the state bank at Stearns was dissolved, the Stearns Power and Light Company was sold to Kentucky Utilities, the company telephone system was acquired by Highland Telephone

Cooperative, and the water system at Stearns was absorbed by the McCreary County Water District.

The Stearns company was revitalized in 1968 with the opening of the Justus Mine, named in honor of Justus S. Stearns, the company founder. The Justus Mine, sold in 1975 to the Blue Diamond Coal Company of Knoxville, Tennessee, is still in operation. In 1979, the Stearns Coal and Lumber Company sold more than 43,000 acres to the U.S. Government for the proposed Big South Fork National River and Recreation Area, a project of the U.S. Army Corps of Engineers.

D. KENTUCKY AND TENNESSEE RAILWAY

Justus Smith Stearns chartered the Kentucky and Tennessee Railroad Company as a wholly-owned subsidiary of the Stearns Company in order to exploit his Kentucky holdings. The history of the Kentucky and Tenessee Railway is directly connected with the evolution of the Stearns Coal and Lumber Company of Stearns, Kentucky. Justus Smith Stearns incorporated the Kentucky and Tennessee Railroad on May 22, 1902, as a wholly-owned subsidiary of the parent company. On February 8, 1904, the Kentucky and Tennessee Railroad was reincorporated as the Kentucky and Tennessee Railway (K & T). The railroad was developed to utilize the vast timber and coal resources within the Stearns lands in southeastern Kentucky and northern Tennessee.

In 1902, construction of the K & T rail line began at the Cincinnati Southern Railway yard at Stearns, Kentucky and progressed westward along Roaring Paunch Creek to the company's first coal mining community at Barthell (Table 2.5 and Figures 2.3 and 2.4). The first locomotive was an Alco Consolidation, No. 1, which had originally been purchased for the Stearns Salt and Lumber Company's operations in Michigan. The first 3.5 miles were not easy since the grading gangs built the line on a hillside above the creek on a 3.5 percent grade. The line was completed to Barthell about May 15, 1903 (Figure 2.5) and the first coal car was hauled out to Stearns, Kentucky on June 1, 1903. The railroad progressed north along the east bank of the Big South Fork to the mines at Worley and was completed to Yamacraw by 1906.

K & T built the present Yamacraw railroad bridge in 1907. It was designed by Ward Baldwin, C.E. from Cincinnati, Ohio. It is a 565-foot reinforced (ballast-filled) concrete/arch bridge across the Big South Fork River. The bridge was "a laudable achievement in railway civil engineering" (Lanier 1974:20), the first of its type to be built in the South. After crossing the Big South Fork River, the railroad continued up Rock Creek, reaching Mine No. 14 at Exodus by 1913. The line from White Oak Junction to Co-Operative was completed in 1921 and continued to Bell Farm by 1923. The K & T Railway ended at Bell Farm, and a rough and rugged logging line was pushed over the hills and valleys into Tennessee. This line began about 1925, ran approximately 25 miles to near East Jamestown, Tennessee, and operated with two Heisler engines.

In 1937, the K & T built a 1.5-mile spur across Roaring Paunch Creek to develop a mine site just north of Devil's Jump along the Big South Fork River. The bridge was purchased from the New York Central Railroad and reconstructed by K & T engineers. Mine Number 18, named Blue Heron, opened in 1938 to process the coal mined on both sides of the valley. The bridge across Roaring Paunch Creek still stands.

In 1939, a railroad repair shop was built at Stearns, where both mine and railroad maintenance was supervised by L. C. Bruce, secretary and traffic manager for K & T Railway.

In 1941, the lumbering operation at the Stearns sawmill was the largest in Kentucky. The yard maintained 15 to 18 million board feet of hard and softwood lumber. The K & T carried an average of 1,000 passengers, mostly miners, to and from work, and railed 3,500 tons of coal daily.

The K & T Railway began to decline after World War II for several reasons. Much of Stearns coal had been sold as locomotive fuel, and the conversion to diesel fuel obliterated the market. Also, oil and natural gas were replacing coal for domestic and industrial heating. Passenger service was discontinued on January 1, 1952. That part of the main line from White Oak Junction to Bell Farm was abandoned on March 28, 1952. The White Oak Junction-Co-Operative branch and the main line between White Oak Junction and Oz was ripped up in 1957. This left only 10.5 miles of line from Stearns to Yamacraw.

From 1957 until 1964, the K & T managed a holding action with steam power. Most of the coal was being sent to plants of Kentucky Utilities and Georgia Power Company and to independent coal dealers in single-car spot sales.

K & T started to convert to diesel engines in 1963 and by February 1964, the coal-fired steam age had ended. The company purchased three 1,000 hp Alco 52 switchers which were surplus from the Denver & Rio Grande Western. At this time, a new diesel repair shop was built at Hemlock, Kentucky.

The Blue Heron Mine No. 18 closed in 1962 and the Oz Mine No. 16 closed in 1966. Thereafter, K & T struggled along on truck loading from three smaller mines not located on the railroad. The Federal Mine Safety Act and the National Environmental Policy Act changed the dimensions of Stearns coal mining. The safety act doomed the small truck mines since they mined coal of limited reserves, and to bring them up to compliance levels would have been too expensive. None of the mines were rail-served, and trucking to the railroad was an expensive process. From a production cost basis, Stearns Company decided to develop a new rail-served mine and one totally committed to compliance with mine safety laws.

The Justus Mine, named in honor of the company founder, Justus Smith Stearns, opened in 1968 and saved the Kentucky and Tennessee Railway from extinction. In 1974, the K & T Railway was the "only independent left of the five Cumberland area short lines: Tennessee Railroad, Oneida, Tennessee (absorbed by Southern Railway); Brimstone Railroad, New River, Tennessee (absorbed by Southern Railway); Oneida and Western, Oneida, Tennessee (abandoned); and Emory River Railroad, Lansing, Tennessee (abandoned)" (Lanier 1974:20). Coal production in 1974 at the Justus Mine was estimated at 3,000 tons per day. All of Justus Mine's production is steam coal that moves north and south over the Southern line to steam-generated electric plants from Ohio to Florida. The Stearns Coal and Lumber Company sold the Justus Mine to the Blue Diamond Coal Company of Knoxville, Tennessee, in 1975. The K & T separated from Stearns on December 29, 1976. Its future is now intimately linked with the developments at the Justus Mine in Stearns, Kentucky.

E. THE ONEIDA AND WESTERN RAILWAY

1. General History

One of the principal rail tributaries of the Cincinnati Southern Railway was the Oneida and Western Railway built between Oneida in Scott County and Jamestown in Fentress County from 1913 to 1930.

The best existing source of historical information on the Oneida and Western Railway is Elmer G. Sulzer's (1975:187-199) Ghost Railroads of Tennessee. Sulzer's account of the development of the O & W is reproduced below with some minor editorial revisions, stylistic changes, and a few deletions. In a few places, additions have been made on the basis of ancillary sources. These are duly acknowledged in the text.

In the early 1900s the Tennessee Stave & Lumber Company planned an extensive timber development in western Scott and eastern Fentress Counties. They chartered the Jamestown Railroad Company in October 1912 originally to run from Glenmary to Jamestown. However, in August 1913, the charter was amended, changing the name to Oneida & Western Railway Company and authorizing construction of a line from Oneida to Albany in Clinton County, Kentucky.

Construction of the railroad and bridges began from Oneida in November 1913 and proceeded west along Pine Creek and crossed Big South Fork River by summer 1915. By July 1916, the line following North White Oak Creek reached 16 miles to Gernt, a proposed timber and mining operations site. By 1921, the Oneida & Western Railway maintained 23 miles of track from its connection with the CNO & TP at Oneida through the White Oak Valley to a Tennessee Stave & Lumber Company yard at East Jamestown (Table 2.6). The railroad was built to standard gauge and laid with 75-ft and 85-ft rail by the Eagle Construction Co. and O & W's own crews.

The Tennessee Stave & Lumber Co. set up an incline at East Jamestown on which logs were hoisted to the railroad track from the creek level several hundred feet below. The company's band-saw lumber mill was established at Verdun, two miles west of Oneida. A 1933 Sanborn insurance map identifies these extensive operations where one million square feet of lumber was stored for the manufacturing of furniture parts (Sanborn Map Co. 1933). Band mills near Gernt and elsewhere contributed logs and lumber to the main yard and mill at Verdun.

In addition to timber, outgoing shipments of the O & W included coal from the mines at Gernt, Zenith, and Hagemeyer. A wholesale grocery at Oneida used the railroad extensively in distributing its items along the line to country stores. Cattle, sheep, hogs, and turkeys also were included in outgoing shipments. Passenger trains carried people out of the valleys and by the connection with the CNO & TP, provided an opportunity for trips to Knoxville, Chattanooga, and Cincinnati.

At one time as many as six daily round trips traveled the line. The passenger and lumber trains left Oneida with scheduled stops at Verdun, Reed's Station, Toomey, Speck, Potter, Gernt, Zenith, Briar Point, Hagemeyer, Stockton, East Jamestown, Hugarth, and Jamestown, a distance of 38 miles (Figure 2.6). Originally, the line was projected to continue to Doss Spur, High Point, Basin, and reach the Cumberland River, a total distance of 100 miles from Oneida.

By 1930, the Tennessee Lumber & Coal Co., owner of the O & W, applied to the Interstate Commerce Commission (ICC) for permission to extend its line from East Jamestown to Jamestown, a distance of 7 miles. The timber reserves in White Oak Valley had been nearly depleted and the company wanted to expand into new territory and establish a passenger depot at Jamestown. The O & W Railway built the depot in 1930 and it is still standing. However, in spite of the extension of the railroad, business rapidly diminished. A motor car was added to the line to handle passengers, mail, and express freight on a single round trip, scheduled daily except Sunday.

In 1942, two banks which controlled the O & W, sold the line to the Crown-Healy Company, a construction firm from Chicago, Illinois. This company anticipated the building of the Tennessee Valley Authority Dam on Wolf Creek near Jamestown. The company hoped that the project would use its railroad to haul cement and other materials for the dam. Unfortunately, WW II suspended the project, and after the war the company applied to the ICC to abandon the O & W Railway.

About 1947, the Jewell Ridge Coal Company of Virginia acquired the O & W and planned to open additional coal mines in the area. In February 1953, the O & W again applied for permission to abandon the entire 37.84 miles of railroad. The U.S. mail contract ended in June 1953, and the passenger motor car was discontinued. In January, the ICC granted the abandonment request and the line was terminated on March 2, 1954. Table 2.7 and Figure 2.7 show the significant events of the O & W.

Since the 1920s, the O & W shared locomotive repair facilities with the neighboring Tennessee Railroad at the Oneida Machinery Company. This facility was dismantled about 1955, and the Tennessee Railroad built a new diesel repair shop. The Tennessee Railroad is still in business today. The O & W never issued an operating rule book of its own, but utilized the Standard Book of Rules utilized by the Association of American Railroads. Train registers were located in the agents' offices at Oneida and Jamestown. Speed of the trains was limited to 10 miles per hour through Pine Creek at Mile 9 and to 8 miles per hour crossing the Big South Fork bridge. This bridge still stands. It is a pin connected, Double Intersection Pratt through-truss for the main span, with deck girders and trestle supports for the east approach span. It was built in 1915, and was the largest engineering project of the Oneida & Western Railway in its 40-year history. Several other bridge crossings along the line have also survived.

About 1956, Commercial Metals of Dallas, Texas, purchased the rails and steel bridges for scrap from the abandoned railroad. At this time, Scott County officials prevented demolition of the surviving bridges and decided to acquire the bridges and secure easements, to a right-of-way along the railbed. According to Tom J. Gentry, Jr. of Oneida, Tennessee, their intention was to create a fire-access road to this wilderness area of western Scott County.

2. Mining Activities at Zenith, Gernt, and Hagemeyer

About 1917, the mines at Zenith were opened by the South Fork Coal Company. The mine originally was known as the "White Oak" mine, named after the coal seam that runs through the Cumberland Mountains (Glenn 1925:280-281). In 1921, the mines at Zenith were acquired by or reorganized as the Superior Red Ash Coal Co. (Mining Department, State of Tennessee 1920:57).

By 1935, the Zenith mines were owned by the Nashville Coal Co. of Nashville and operated by the Jackson-Laxton Coal Co. of Jamestown. At this time, the mine was described as a class "A" slope mine with an average 42-inch seam in the Cumberland Mountains 21 miles from Jamestown on the O & W line. The roof of the mine was sandrock and shale and the bottom was slate. It was developed on the entry and room system and was ventilated with a 6-ft diameter fan. In this year, 59,000 tons of coal were hauled 1,200 ft from the mine to the siding by mule; 1,100 ft from the siding to the side track by mule; and 250 ft from the side track to the tipple by wire rope (Mining Department, State of Tennessee 1935:40).

In 1919, Bruno Gernt of Allardt financed the opening of the "Laurel Mine" and formed the East Laurel Mining Company to work the White Oak coal seam in the Cumberland

Mountains above the community named Gernt. It was a class "D" slope mine located 15 miles from Oneida on the O & W line. The coal seam averaged 30 inches; the roof of the mine was slate and sandstone and the bottom was fire clay. It was developed on the single entry and pillar system and ventilated with a 4-ft diameter fan. The coal was hauled 2,000 ft from the working face of the mine to the foot of the slope by mules and 175 ft from the slope to the tipple by rope. In this year the mine produced 5,385 tons (Mining Department, State of Tennessee 1924:48-49).

In 1924, the Tennessee Stave & Lumber Co. (owners of the O & W) began a mine at Hagemeyer. It was operated by the Jackson-Laxton Coal Co. The mine was located about 20 miles west of Oneida with access on the O & W line. At this time, the coal seam was about 36 inches into the Cumberland Mountains and was developed on the single entry and pillar system. The coal was hauled 500 ft from the working face of the mine to the slope by men and 400 ft from the slope to the tipple by rope hoist. The mine produced 5,115 tons in 1924 (Mining Department, State of Tennessee 1920:55, 73, 85, 92).

Table 2.1
Production of crops and livestock
in Fentress, Scott, and McCreary Counties, Kentucky, 1900 - 1930

County	1900		1910		1920		1930
Fentress							
Corn-acres	13,982		12,617		12,031		7,123
Hay and forage-acres	1,747		2,694		9,558		5,517
Beef cattle	2,715		4,593		1,427		
Dairy cattle	1,470	4,185	1,714	6,307	3,696	5,123	3,136
Sheep	5,325		4,587		3,379		NA
Swine	11,730		7,106		8,052		5,198
Chickens	13,756		NA		34,880		NA
Scott							
Corn-acres	14,404		11,755		11,019		10,615
Hay and forage-acres	2,398		3,208		7,335		3,185
Beef cattle	3,109		5,850		1,923		
Dairy cattle	2,130	5,239	2,709	8,559	3,777	5,700	3,434
Sheep	3,993		6,258		4,929		NA
Swine	14,891		8,194		7,332		4,288
Chickens	24,699		NA		33,063		NA
McCreary							
Corn-acres	NA		NA		9,808		6,177
Hay and forage-acres	NA		NA		6,273		1,216
Beef cattle	NA		NA		1,520		
Dairy cattle	NA		NA		2,880	4,400	2,271
Sheep	NA		NA		4,137		NA
Swine	NA		NA		5,243		2,846
Chickens	NA		NA		24,564		NA

NA - Not available.

Table 2.2
Number of farms and farm acreage in Fentress, Scott, and McCreary Counties, Kentucky, 1900 - 1930

County	1900	1910	1920	1930
Fentress				
Number of farms	972	1,019	1,214	987
Acres in farms	177,022	144,011	143,740	79,937
Percent of land in farms	56.9	46.3	46.0	25.7
Average farm size/acres	182.1	141.3	118.4	81.1
Scott				
Number of farms	1,389	1,490	1,344	1,124
Acres in farms	164,743	132,000	109,150	74,976
Percent of land in farms	46.8	37.5	31.0	21.3
Average farm size/acres	118.6	88.6	81.2	66.8
McCreary				
Number of farms	NA	NA	1,161	1,058
Acres in farms	NA	NA	86,814	60,023
Percent of land in farms	NA	NA	33.0	23.1
Average farm size/acres	NA	NA	74.8	56.7

NA - Not applicable.

Table 2.3
Average farm size in selected communities, 1980

Community	Total acres	Number/ houses	Number/ barns	Number/ parcels	Average acreage per farmstead
Wilson Ridge*	16.90	3	1	3	5.63
Beech Grove*	163.36	6	8	9	18.15
Shoopman	396.80	4	3	5	79.36
Otter Creek	78.65	2	1	1	39.33
No Business	557.60	6	8	4	69.70
Parch Corn	51.65	1	1	1	51.65
Station Camp	430.35	6	6	4	71.75
Bandy Creek	99.90	4	4	4	24.98
Leatherwood	403.05	10	11	9	36.64

Average farm size - 44.88 acres per farm.

* Probably not a farming community, average acreage is too small.

Table 2.4.
Selected Listing of Mine Operation Dates
for Stearns Company Coal Mines (1903-1973)

Community	Mine Number	Opening Date	Closing Date
Barthell	Number 1	1903	1944
Barthell	Number 2	1905	1919
Worley	Number 3	1905	1910
Worley	Number 4	1905	1953
Yamacraw	Number 10	1907	1930
Yamacraw	Number 11	1910	1949
Worley	Number 12	1917	1919
Exodus	Number 14	1918	1919
White Oak Jct.	Number 15	1923	1944
Oz	Number 16	1924	1928
Oz	Number 16-2	1957	1966
Blue Heron	Number 18	1938	1962
Blue Heron	Number 19	1963	1964
Blue Heron	Number 20	1964	1964
Blue Heron	Number 21	1964	1968
Blue Heron	Number 22	1965	1967
Blue Heron	Number 23	1965	1967
Blue Heron	Number 24	1967	1969
Blue Heron	Number 25	1967	1969
Blue Heron	Number 26	1967	1967
Blue Heron	Number 11-A	1967	1968
Justus	Justus	1968	1973

Table 2.5
Selected operational statistics
for the Kentucky and Tennessee Railway*

Year	Line Miles Owned	Line Miles Operated	Income	Locomotives	Freight Cars	Passenger Cars
1904	3.60	3.60	-	-	-	-
1905	7.19	7.19	513	-	-	-
1906	7.72	7.72	2222	-	-	-
1907	10.52	8.25	3460	-	-	-
1908	11.36	10.52	1222	-	-	-
1909	11.36	10.52	2004	-	-	-
1910	11.36	10.52	2617	-	-	-
1911	11.36	10.52	23234	4	25	2
1912	12.98	10.52	4590	5	25	3
1913	16.27	10.52	30256	5	24	4
1914	16.27	16.27	8118	5	23	5
1915	16.27	16.27	6621	-	23	3
1916	16.27	16.24	20990	-	23	5
1917	16.27	16.27	36278 n	5	14	4
1918	16.27	16.27	18647	5	14	5
1919	16.27	16.27	34953 n	-	-	-
1920	16.27	16.27	60051	5	19	5
1921	16.27	16.27	62539	5	19	15
1922	17.84	17.84	18632	-	-	-
1923	-	19.68	40953	6	19	6
1924	19.68	19.68	36996	6	19	6
1925	19.68	19.68	65358	6	-	6
1926	19.68	19.68	52915	-	-	-
1927	19.68	19.68	57781	6	81	7
1928	19.68	19.68	49724	6	81	7
1929	21.23	21.23	63167	6	91	7
1930	21.23	21.23	12610	6	91	7
1931	21.23	21.23	5409	6	91	7
1932	21.23	21.23	25653	6	91	4

Table 2.5 (Continued)

Year	Line Miles Owned	Line Miles Operated	Income	Locomotives	Freight Cars	Passenger Cars
1933	21.00	21.00	2159	6	85	4
1934	21.00	21.00	23518	6	83	4
1935	21.00	21.00	50324	9	-	11
1936	21.00	21.00	8595	6	89	4
1937	21.00	21.00	25634	6	88	4
1938	21.00	21.00	6141	6	88	4
1939	21.00	21.00	23812	6	88	4
1940	21.00	21.00	31797	5	88	4
1941	21.00	21.00	7394	5	88	4
1942	21.00	21.00	77124 n	5	88	4
1943	21.00	21.00	29870	5	88	4
1944	21.00	21.00	21650	5	88	4
1945	21.00	21.00	1164	5	88	4
1946	21.00	21.00	38203	5	88	4
1947	21.00	21.00	33672	5	87	4
1948	21.00	21.00	17245	6	87	4
1949	21.00	21.00	38633	6	77	4
1950	21.00	21.00	16638 n	6	73	2

* Known as the Kentucky and Tennessee Railroad from 1902 to 1904.

Source: Interstate Commerce Commission. 1904-1954 Annual report of the statistics of railways in the United States. Government Printing Office, Washington, D.C.

Table 2.6

Progress of Oneida and Western Railway construction

Date	Miles completed	Community
1913	0	Oneida
1913-1914	2	Verdun
1914-1915	3	Reed's Station
1914-1915	6	Toomy
1915-1916	13	Speck
1915-1916	14	Potter
1916	16	Gernt
1916	17	Zenith
1916	19	Christian
1917	20	Briar Point
1917	21	Hagemeyer
1918	25	Acyork (Stockton)
1921	30	East Jamestown
1930	35	Hugarth
1930	39	Jamestown

Table 2.7
Significant Events in the History of the Oneida and Western Railway

Year	Miles Owned	Deficit/Profit	Comments
1912			Oneida and Western Railway organized by Tennessee Stave and Lumber Company
1913			Construction of line began
1914	5.0		
1915	9.0	$ 4,293	Completed to the Whipple Truss over the Big South Fork (E009)
1916	15.0	6,838	Completed to Gernt
1917	23.0	4,271	
1918	23.5	15,234	Operating - independent. Completed to Stockton
1919	25.0	17,468	
1920	25.0	48,150	
1921	25.0	25,570	Completed to East Jamestown
1922	25.0	84,760	
1923	25.0	47,327	
1924	30.15	18,118	
1925	30.15	65,858	
1926	30.15	63,155	
1927	30.15	32,441	
1928	30.15	54,509	
1929	30.15	56,105	Peak profits. Bought by Tennessee Lumber and Coal Company
1930	37.84	-13,925	Nine mile extension to Jamestown completed
1931	37.84	-18,852	
1932	37.84	-15,298	
1933	38	-5,178	

Table 2.7 (Cont.)

Year	Miles Owned	Deficit/Profit	Comments
1934	38	-13	Despite extension, business diminishes rapidly
1935	38	-2,919	
1936	38	-10,695	
1937	38	-14,255	
1938	38	-10,206	
1939	38	-1,720	
1940	38	-993	
1941	38	-13,039	
1942	38	-14,342	
1943	38	-14,766	
1944	38	-33,813	
1945	38	-21,023	
1946	38	-30,883	Application to abandon railroad, application withdrawn, became subsidiary of Jewell Ridge Coal Corporation
1947	38	-12,695	
1948	38	-15,858	Controlled by majority (2/3) owner of capital stock
1949	38	-30,576	
1950	38	-35,658	
1951	38	-61,785	
1952	38	-82,603	
1953	38	-68,456	Passenger/mail service discontinued
1954			Road abandoned March 31, 1954 Termination of all services

Source: Interstate Commerce Commission. 1904-1954 Annual Report of the Statistics of Railways in the United States, Government Printing Office, Washington, D.C.

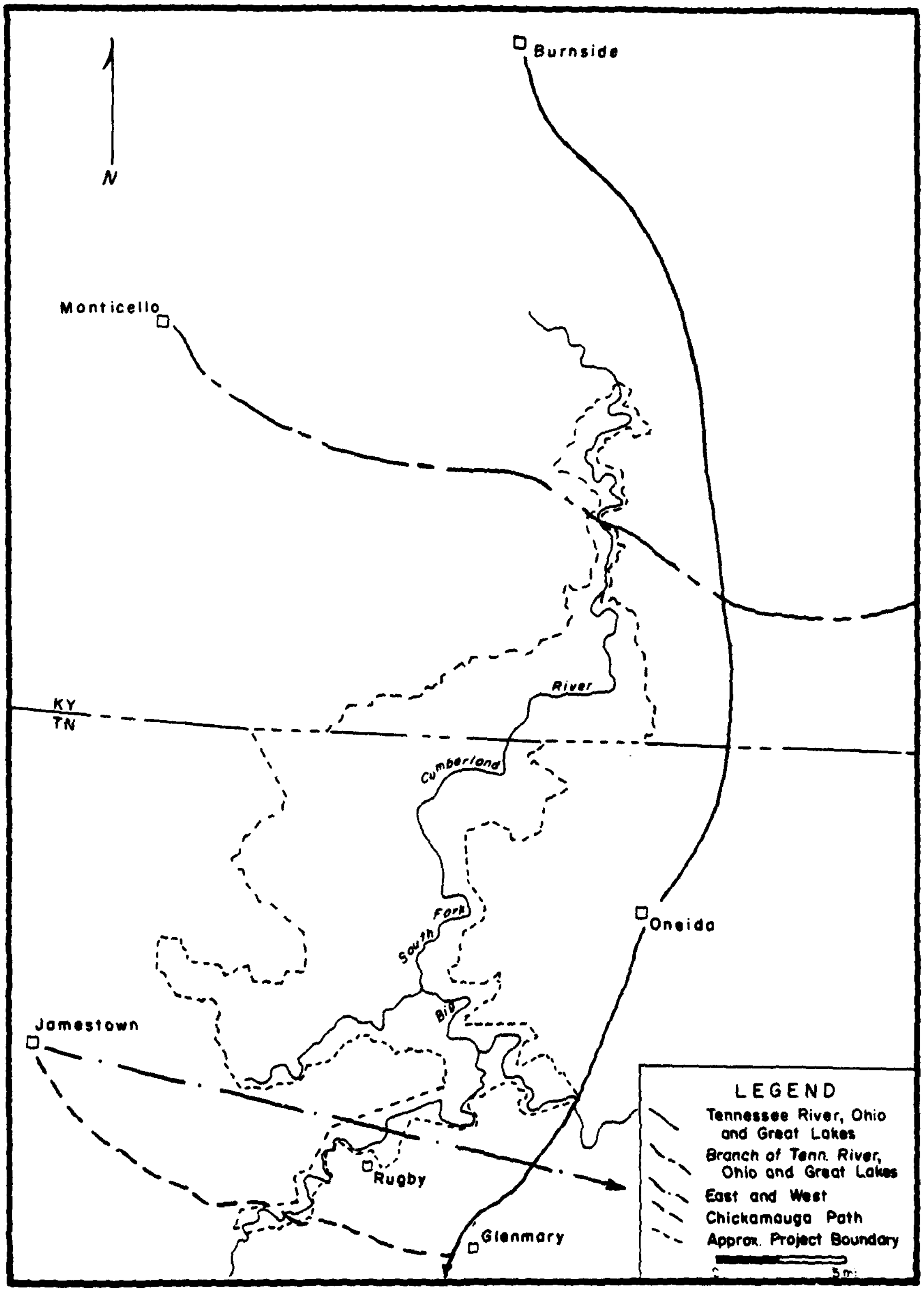


Figure 2.1 Indian trails of the Big South Fork.

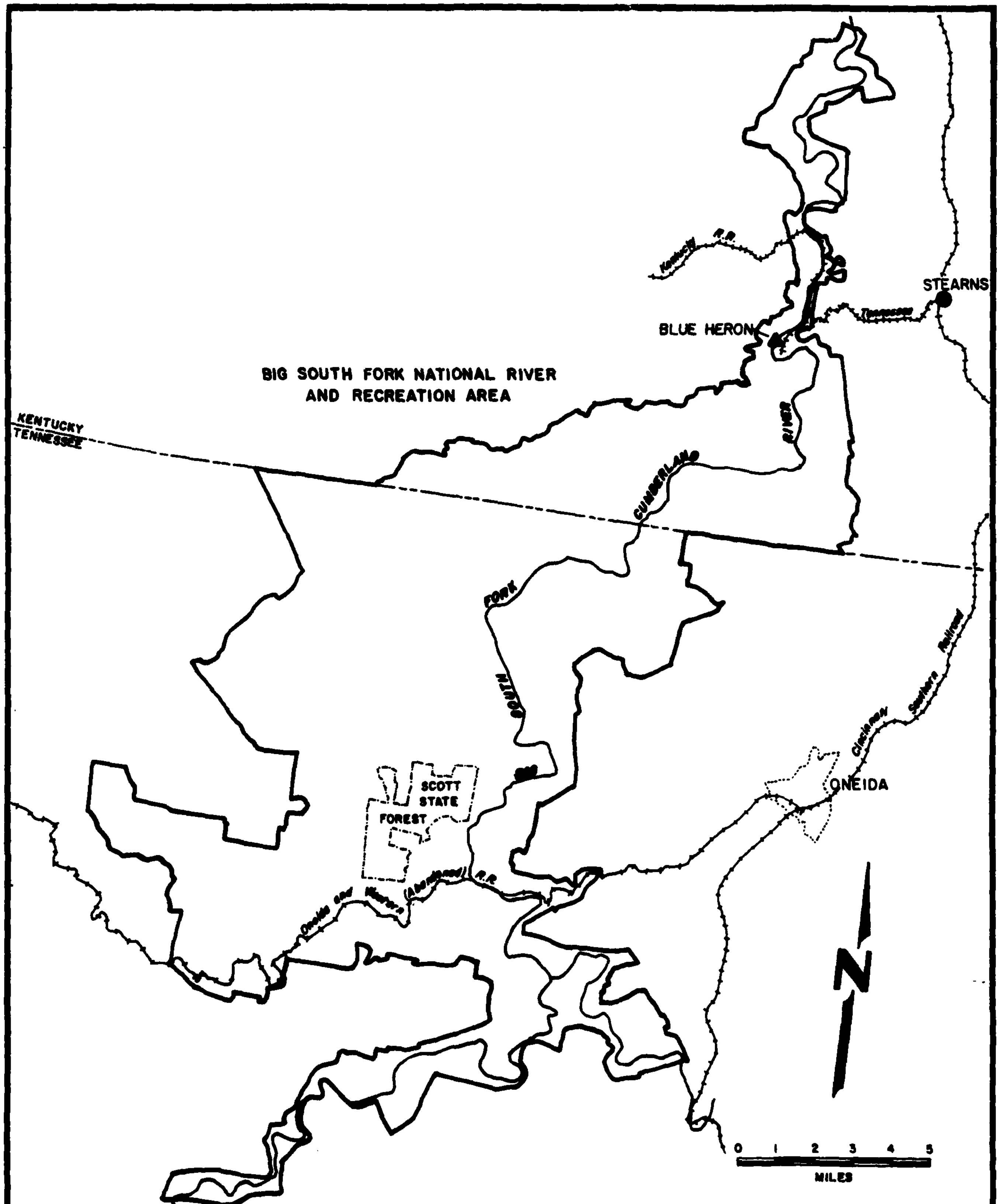


Figure 2.2 Routes of the Oneida and Western, Kentucky and Tennessee, and Cincinnati Southern Railway

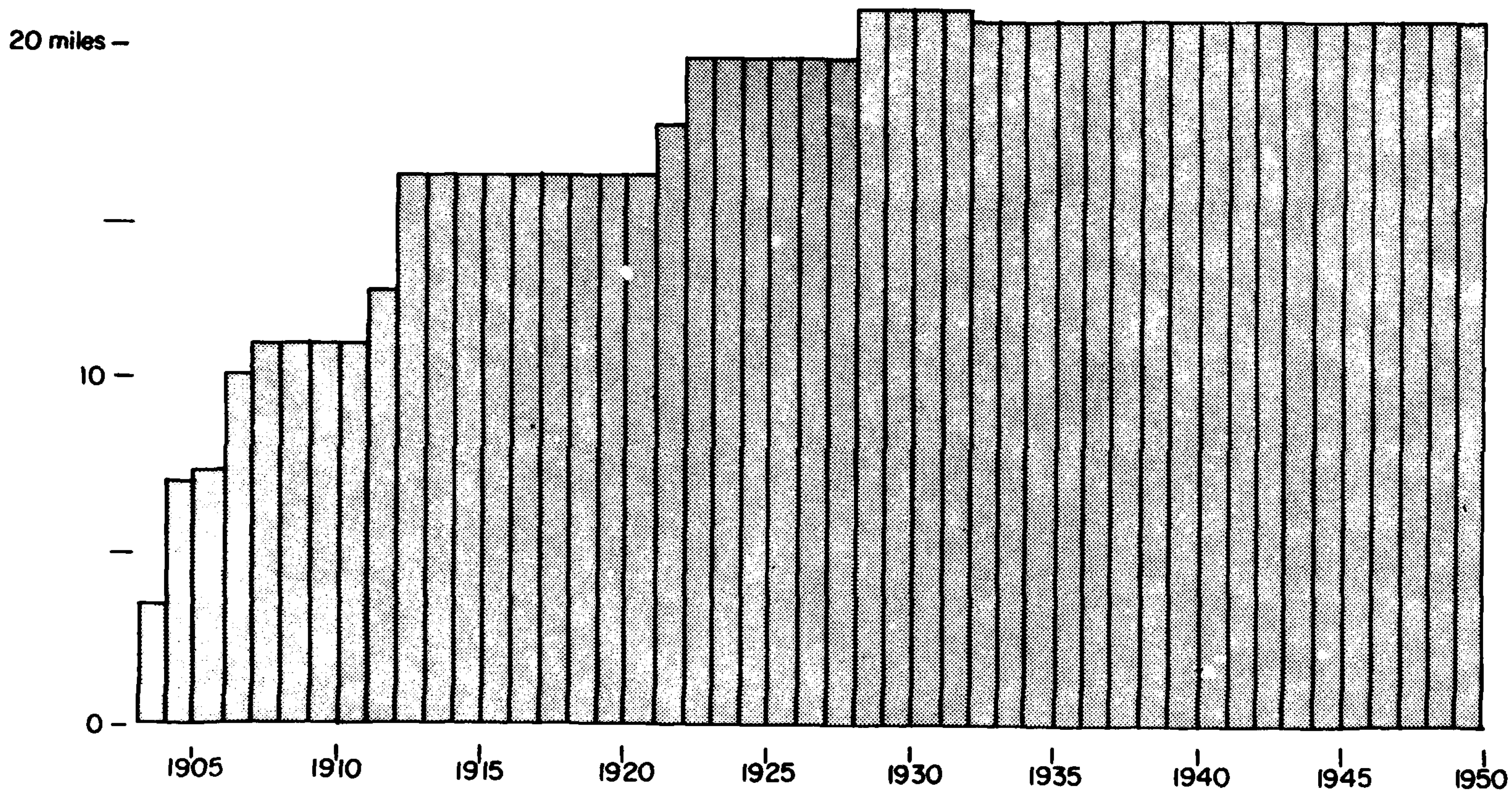


Figure 2.3 Schematic presentations of miles owned, Kentucky and Tennessee Railway.

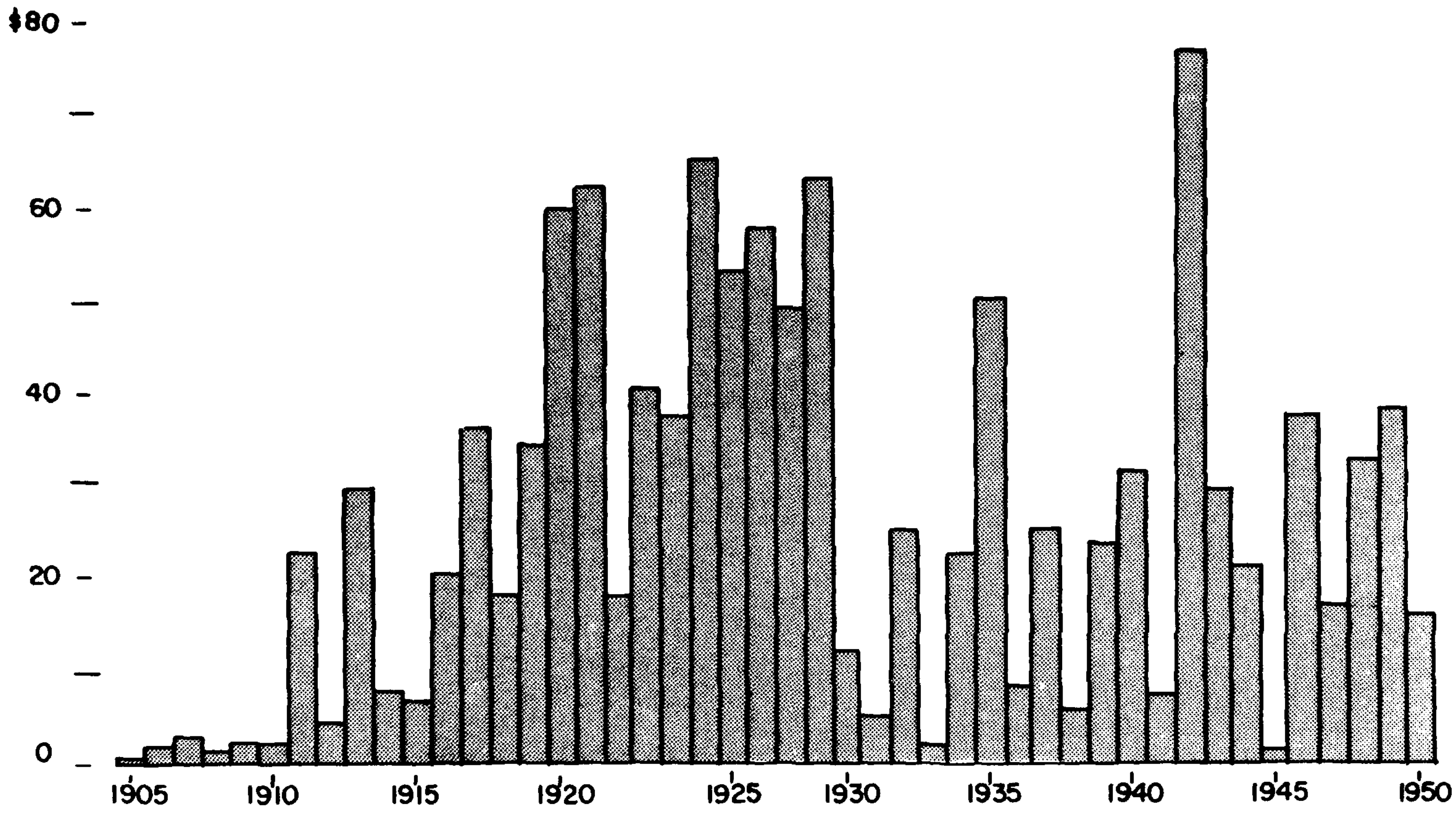


Figure 2.4 Schematic presentation of income, Kentucky and Tennessee Railway.

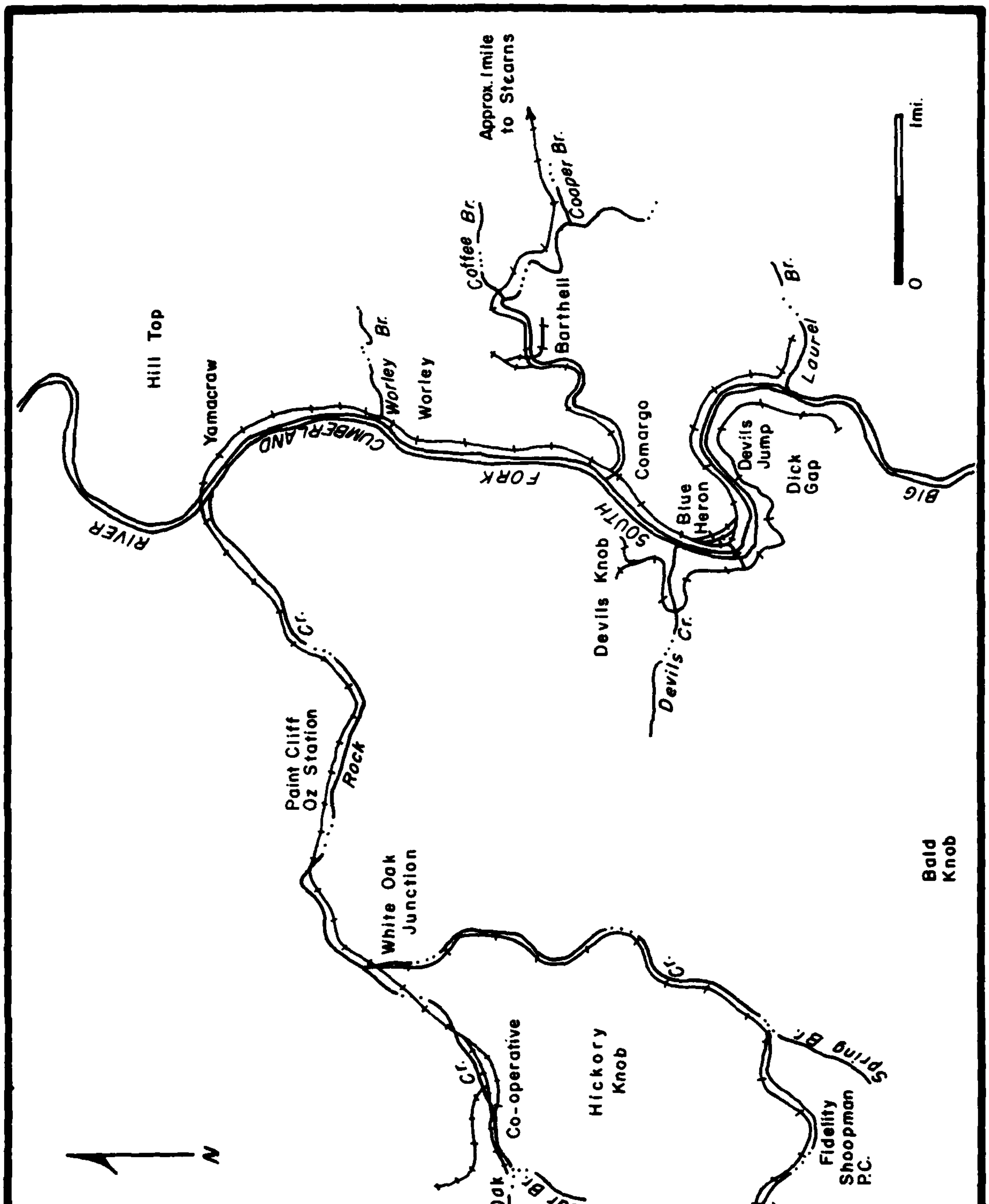


Figure 2.5 Route of the Kentucky and Tennessee Railway.

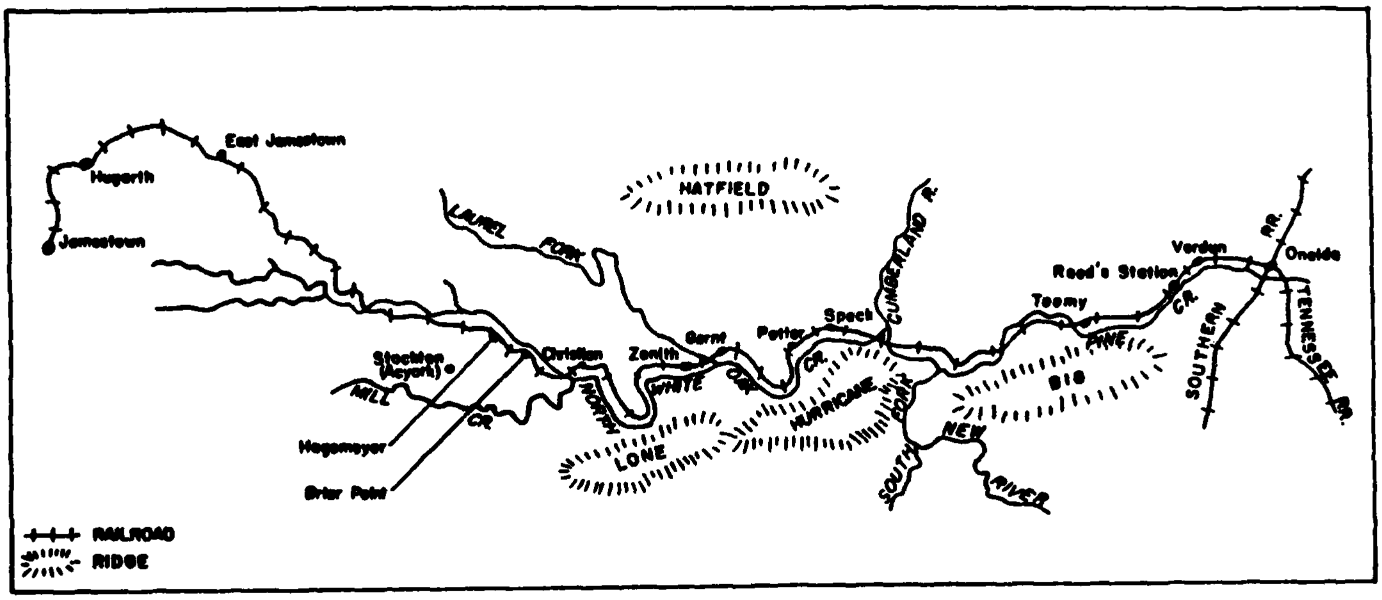


Figure 2.6 Route of the Oneida and Western Railway.

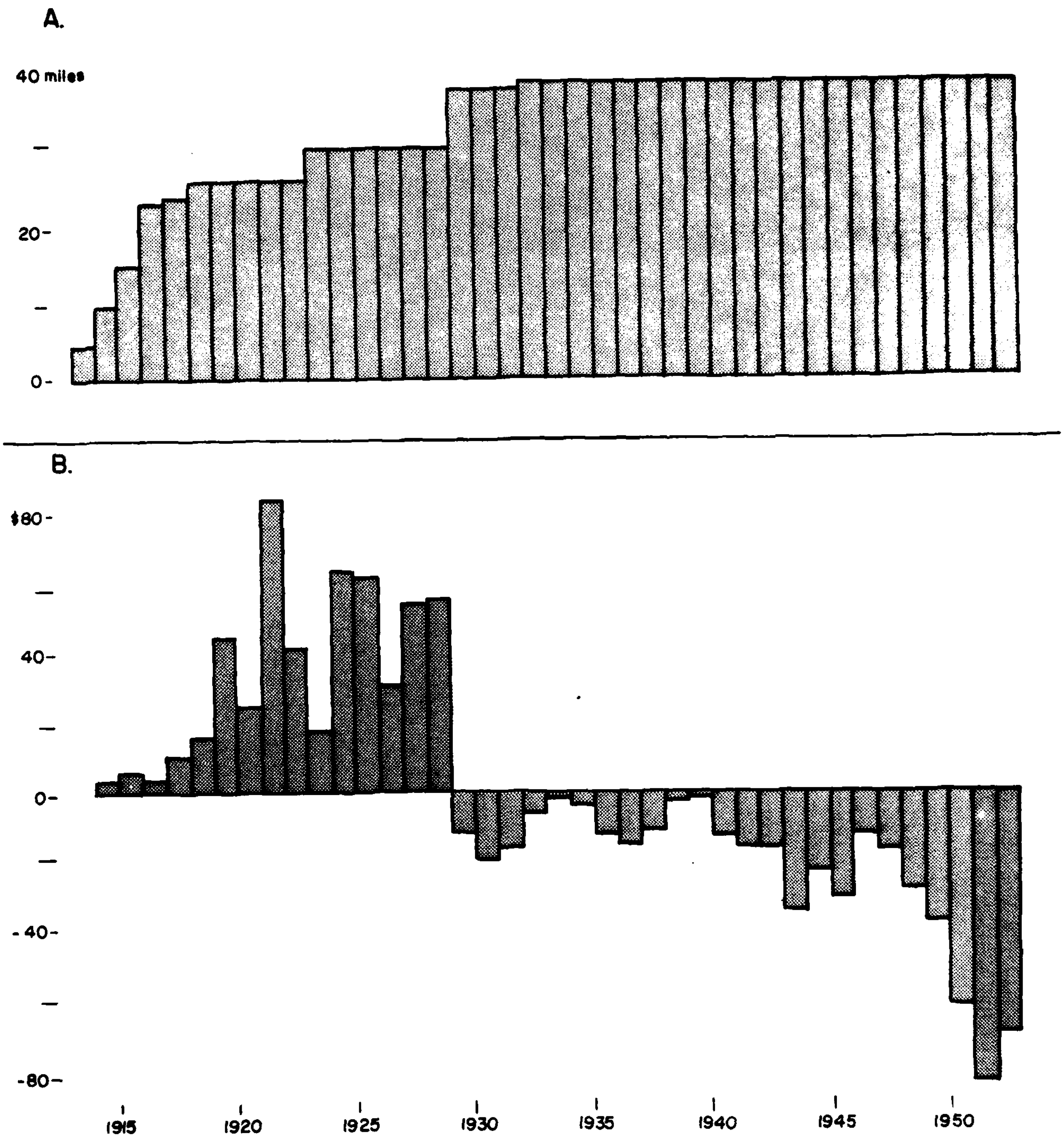


Figure 2.7 Schematic presentation of miles owned and income, Oneida and Western Railway: A. mileage; B. income.

III. RESEARCH DESIGN AND METHODOLOGY

A. RESEARCH DESIGN

The research design employed by Environment Consultants, Inc. (ECI) for the "Inventory and Evaluation of Architectural and Engineering Resources of the Big South Fork National River and Recreation Area" consisted of three fundamental parts. These were:

1. Description of architectural and engineering resouces;
2. Identification of the environmental and industrial context of these resources; and
3. Explanation of the resources within an ecological and industrial framework.

1. Description of the Resources

The first element of our research design had two primary objectives. Our first objective was to locate, map, illustrate, record, and date all historic buildings and structures in the project area. The second objective was to determine the use or uses, i.e., function, of each structure and building.

The precise location and thorough, detailed documentation of both the architectural and engineering resources was necessary, both in terms of research needs and management needs. We have used the term "folk architecture" to describe the architectural resources found in the BSFNRRA. Folk architecture is generally defined as having traditional construction techniques. A folk house is built by someone who carries a cognitive model of the way houses should look when finished; the construction techniques for such a building have been taught to him by a neighbor or a parent. In most folk construction, the owner is also the builder (Baird and Shaddox 1981). Folk buildings are built without blueprints or other written plans (Glassie 1968a). They are products of "folk formulae rather than of architects' design" (Montell and Morse 1976:ix).

> Folk buildings. . . . are expressions of traditional patterns carried in the memory rather than committed to writing, learned by informal imitation rather than by formal instruction. (Montell and Morse 1976:ix).

Glassie (1968a) also states that during construction, a folk object cannot be part of the popular (mass) or academic (elite) cultures. The architectural resources of the BSFNRRA have particular value in the documentation of folk architecture and its changes through time. We found the work of Glassie (1968a, 1968b) and of Kniffen and Glassie (1966) essential in providing a descriptive framework for our research. Glassie (1968a) identified the primary type of the "Southern Mountain Cabin" and provided a much-needed theory for understanding American folk culture (1968b). Glassie's (1968a) research indicated that cabins of the Southern Mountain Folk Architectural Complex were present in an area which includes the Great Smokies, the Alleghenies, and the Blue Ridge Mountains. The Cumberland Mountains were specifically excluded from the Southern Mountain Folk Architectural Complex, rendering the study of folk-architectural forms in the project area particularly significant from a comparative standpoint. The research of Glassie (1968a) and Kniffen and Glassie (1966) indicated considerable difference in architectural styles between the Southern Mountain Folk Architectural Complex and other architectural traditions in the South. This kind of difference was also apparent in the contrasts noted by Riedl, Ball, and Cavender (1976)

between the folk architecture of the Normandy Reservoir area and the Southern Mountain Folk Architectural Complex.

Previous research in the BSFNRRA (Duda 1980) has emphasized the importance of adaptation in the economic strategies of families in the Big South Fork area. We recognized a gradual change through time, rendering not only initial fabrication of buildings and structures, but also subsequent alterations to them, of central importance to our research. Extensive use was made of the results of the BSFNRRA folk life study conducted by Howell, Duda, and Tincher; historical records, informant interviewing, and study of early maps to obtain construction dates and major modification dates wherever possible. In this way, we added a much-needed temporal perspective to studies of folk architecture in the Southeast.

Another important element of the descriptive portion of the research design was the determination of the function or functions of each building and structure. Certainly, an important aspect of the adaptive nature of folk architecture is the multiplicity of functions which any given structure may serve during its lifetime. Investigators of folk architecture should not lament the various accretions and modifications made to the typical log structure during its lifetime, for this ignores the fundamental organic growth and evolution of the structure which is intimately intertwined with the very personal adaptive economic strategies of the family that owns it. As investigators of folk architecture, it was incumbent upon us to explain these accretions and modifications in terms of the lives and social conditions of the people who made, modified, and used them. This comment should by no means be taken as applying to log structures alone, for one frequently encounters the classic kitchen and front porch additions attached to buildings as recent as mobile homes. It is our view that the architectural resources of the BSFNRRA are an expression of the lifestyle of the people who built them and of the close relationship of that people to the land upon which they lived. It was, thus, incumbent upon us from both a scholarly and management point of view to understand this relationship; therefore, description was not an endpoint, but is the first step in the process of adequately evaluating the resources.

2. Identification of Resource Contexts

The second fundamental part of our research design was the contextualization of the architectural and engineering resources. This process of contextualization was accomplished by considering the environmental and industrial context of each structure. Previous folk architectural studies in the region have suffered from an apparent lack of concern as to why structures were built, where they were, and why they were modified in the ways in which they were. Some promising strides have been made in locational analysis of prehistoric sites in North America, but the potential of locational analysis in the context of historic archaeology has not yet been realized on this continent, although there is a trend in this direction. The excellent work on locational analysis of historic archaeological sites in Europe (especially Great Britain, cf. Hodder and Orton 1976) certainly suggests that locational analysis has an important role to play in our attempts to unravel the intricacies of American folk culture.

One very modest attempt has been made in conjunction with the Fort Knox project to determine site locational preferences (O'Malley et al. 1980). The Fort Knox data reveal that sites in both the historic and prehistoric periods are not randomly distributed over the surface of the land. Substantial differences were apparent between the way in which historic and prehistoric sites are distributed. The distributional analyses conducted on the historic sites at Fort Knox in the Western Knobs of Kentucky provided an interesting comparative sample for data on site distribution with respect to

natural environmental variables in the BSFNRRA. The Fort Knox study, however, was unfortunately limited to natural environmental features. The above-mentioned research of European historic archaeologists strongly suggests that the importance of such "industrial" factors as the presence of major transportation arteries, industrial complexes, and such community foci as the schools and churches of the BSFNRRA area must be considered in understanding the settlement system of the people of the BSFNRRA area and of the architectural components manifested by that system.

The engineering resources (along with architectural ones) played a significant role in displaying the impact of industry in shaping the socio-economic context of the BSFNRRA area. We attempted to differentiate between subsistence farming, lumbering, mining, and railroading in terms of their influences upon settlement systems and settlement history of the area.

3. Explanation of the Resources within an Ecological/Industrial Context

The task of explaining the architectural and engineering resources of the area is a formidable one. We encountered a fair degree of success in dealing with location of dwellings and barns, but were limited by sample size in our efforts to address the patterns of distribution of other types of buildings and structures. Statistical treatment of the patterns discovered facilitated comparison with the Fort Knox data and provided a comparative base for future studies of historic settlement patterns in the Southeast. A model of historical development was employed which utilized the environmental data collected and focused upon changes in locational behavior from the perspective of settlement geography. The format of the model was adapted from Hudson's (1969) theory of rural settlement location, which recognized three processes of rural settlement. The processes may overlap, but generally took effect in a sequential manner, and can be thought of as stages of frontier occupation. The stages are colonization, spread, and competition. A similar approach has been recommended for Cannon Reservoir in Missouri (Saunders and Mason 1979), and may ultimately provide comparative data for use during subsequent stages of investigation in the BSFNRRA study area.

The use of Hudson's model is not to imply its primacy, because frontier settlement has been of interest to geographers and geographically-minded investigators throughout this century. An alternative, but complementary model of frontier change has been offered by Lewis (1977) for historical development in North America as applied in South Carolina. The BSFNRRA area was an ideal rural area to test or expand Lewis' model, which deals primarily with the frontier town of Camden, South Carolina.

These changes were then compared to such major industrial events in the BSFNRRA as the arrival of the railroads, the coming and demise of the logging industry, and the inception of coal mining. The results of this work were then compared to what is known in the literature about general changes in settlement systems on both a regional and national scale.

In pursuing the study of the architectural remains of the BSFNRRA area, we made use of information on both the structures currently standing and those which were known through maps and informant testimony to have existed in the past. It is only through such study that the settlement system could be adequately reconstructed. In terms of the possible interpretive value of existing standing structures, the Corps of Engineers needs to know the universe from which these are but a sample. Without this broader view it would be impossible to know if the sample is representative of the universe from which it has been drawn.

The research design employed was a coordinated multidisciplinary effort. Our determinations of significance of the architectural and engineering resources rested upon not only WHAT they are, but also WHERE they are, and WHY they are there. These questions were addressed with expertise from anthropology, folklore, history, and geography. We were cognizant of the fact that the architectural and engineering resources of the National Area are being considered from the point of view of their interpretive value for visitors to the area. We evaluated the resources with both research and management considerations in mind, basing our assessments on their importance as illustrative examples of the history and industrial development of the area, as well as upon their significance to studies of folk architecture and engineering history.

The description of architectural and engineering resources was the first major component of the research design. The results of this effort are presented in Chapter IV and Appendix A for architectural resources. Chapter VI and Appendix C present the results of our description of engineering resources. Specific locations of resources are documented in the maps of Appendix D.

The second major segment of the research design, identification of the environmental and industrial context of the architectural resources, is presented as Chapter II. The environmental and locational context of all structures identifiable on the 1952 through 1955 USGS topographic maps, all structures within the Kentucky portion of the project as indicated on a 1934 topographic map, (Kentucky Geological Survey 1934), and a control sample of environmental points are presented in Appendix B.

The third segment of the research design, explanation of resources in terms of an ecological and industrial framework, is presented in Chapter V.

Specific elements of the research design applicable to each of the project objectives are discussed in their appropriate contexts within each of the constituent chapters. The specific translation of the research orientation into evaluative criteria for determination of significance is presented in Chapter VII.

B. ARCHITECTURAL METHODOLOGY

Field investigation of the architectural resources in the BSFNRRA consisted of two phases--initial location of all sites and structures and intensive documentation of selected standing buildings.

Buildings within the project boundaries were first located on USGS 7.5 minute topographic maps dating between 1952 and 1955. Each quadrangle was assigned an alphabetic identification code (e.g., Honey Creek = H) and each building on the quadrangle was assigned a 2 or 3 digit number. This system was used to give each building within project boundaries a field identification number (e.g., ST04 = Stockton quadrangle, building #4).

After numbering all the buildings appearing on the topographic maps, a tract map was secured from the Big South Fork Real Estate Property Office of the Army Corps of Engineers in Oneida, Tennessee. Using the tract maps, the Army Corps tract numbers and the names of the landowners were recorded for each building or building site. Landowners were then contacted by telephone or in person for permission to document the building, building remains, or building site located on their property. When permission was obtained, the building or site was visited on foot by a survey team. All

buildings identified on the topographic quadrangles were visited with the exception of two farms where permission was not granted by the landowners.

Over 260 standing building sites and archaeological sites were visited. A total of 49 standing buildings was found. A standing building is defined as having four intact walls and at least a skeletal roof structure. Six of these 49 standing buildings do not appear on the topographic maps. These were outbuildings associated with an identified building and were of substantial construction. Over 210 archaeological sites were located in the course of the present inventory. A building which was partially or totally collapsed or a location where a building once stood was considered to be an archaeological site.

Each building site (whether standing or archaeological) was recorded on field forms designed by ECI. In addition, archaeological sites located in Kentucky were recorded on Kentucky Archaeological Site Survey Forms; standing buildings were recorded on a Kentucky Historic Resources Inventory form. Archaeological sites located in Tennessee were recorded on a State of Tennessee Site Survey Record and a Supplemental Information Sheet for General Historic Sites; standing buildings were recorded on a Tennessee Historical and Architectural Inventory form. All standing buildings (49) also were recorded on National Architectural and Engineering Record (NAER) forms.

Each building, building remain and archaeological site encountered was photographed with black and white film. Color slides were taken of all standing structures. A total number of 1,205 photographs were taken; 886 black and white prints and 319 color slides.

Environmental observations were made on all buildings encountered (whether archaeological or standing). An additional sample of 125 points was placed at 2,000-meter Universal Transverse Mercator (UTM) grid intervals throughout the survey area. Environmental variables were based upon those used by the Indiana University Glenn Black Laboratory in conjunction with the ORACLE system (Limp 1978). These variables are:

- UTM Northing and Easting
- Major watershed
- Closest named water source
- Hydrologic type of nearest water source (spring, river, etc.)
- Class (stream rank order in the Strahler system)
- Presence of nearby stream intersection
- Direction to water
- Distance to water
- Elevation
- Soil series
- Topographic-geomorphological setting
- Vegetation
- Slope
- Aspect (Slope face direction)
- Flood potential

The second phase of field work entailed intensive documentation of a sample of the standing buildings (see Chapter VII). Buildings selected for inclusion in the sample were documented with appropriate state forms (Appendix G). Each of the sampled buildings was measured to produce a scale plan. Elevations of all sampled buildings also were prepared. Specially designed forms were completed for attributes of houses and barns. This material is presented in Appendix A.

C. ENGINEERING METHODOLOGY

Known engineering sites, as identified on 1952-1955 USGS 7.5 minute topographic maps, were visited by a survey team to determine the condition of the existing engineering resources. Standing structures were recorded on Tennessee Bridge Survey and Inventory forms and on Kentucky Historical Resources Inventory forms, as well as on OAHP forms.

Seven bridges on the Oneida and Western Railway were in such fragmentary condition that they were not evaluated (see Appendix D for locations). Only portions of the abutments remain of a former vehicular bridge at Worley.

Library research was conducted at public libraries in Oneida and Jamestown; at the University of Tennessee Library, Knoxville; and at the University of Kentucky Libraries, Lexington. Visits were made to the Tennessee State Historic Preservation Office and to the Tennessee Department of Transportation in Nashville. This research indicates that there have been major advances in recent years in completing an inventory of bridges in the state of Tennessee. However, the data collected remain unanalyzed, with little if any synthetic treatment or comparative research. Inquiries in the state of Kentucky revealed that the inventory of bridges as engineering resources in the state is in its infancy, and that few bridges have received even primary documentation. Inquiry with the Superintendant of Roads for Scott County, Tennessee, revealed that no maintenance records were kept on county bridges prior to 1978. Records which included information on the Kentucky-Tennessee railroad bridges were obtained from the Kentucky-Tennessee Railway Company offices in Stearns, Kentucky. Drawings of bridges were obtained whenever possible. Bridges were photographed in all cases.

IV. FOLK ARCHITECTURE

In this chapter, the folk architecture of the Big South Fork National River and Recreation Area is discussed and compared with the folk architecture of the eastern United States. The first section of the chapter is a discussion of architectural elements which appear in buildings of the project area. The second section discusses houses and barns in terms of typology and in terms of their individual architectural and elemental configurations. The third section examines patterns of historical change in the architectural history of the project area insofar as they can be determined from the available architectural resources.

A. CODING PROCEDURE

Buildings are "artifacts originally created to serve as shelter from the elements or to meet some other human need in a relatively permanent location" (Chenhall 1978:22). Relative permanence and relatively large size are the two primary distinguishing characteristics for buildings. Buildings were classified using the term that best describes the function of the structure as a whole: house, barn, out-building, blacksmith shop, workshop and commercial (Chenhall 1978:22). Historic farmstead refers to a group of related farm buildings having at least two intact structures built before 1930.

The following object-name terminology involves "building fragments," that is, the structural and decorative segments of buildings such as foundation, wall, and roof (Chenhall 1978:22).

1. Foundation Treatment

There are three types of foundations in the BSFNRRA sampling universe: continuous, footer, and pier (Figure 4.1). The continuous foundation has a wall-like appearance and gives running structural support around the perimeter of the building. Materials used in the continuous foundations in the sample include concrete block, poured concrete set up in forms, hewn stone, and uncut stone. The stone was either piled dry or with mortar. The footer foundation consists of concrete or masonry at spaced intervals supporting the load of the building. Concrete block, poured concrete set up in forms, wood post, dry-piled uncut stone, dry-piled hewn stone, and mortared hewn stone were all materials used in the project area for the footer foundation. The footer is never more than 18 inches high. The pier foundation is similar to the footer because the load support for the building occurs at spaced intervals. Materials used in the pier foundation include wood post, concrete block, dry-piled and mortared uncut stone, and hewn stone. The pier foundation is more than 18 inches but less than 4 feet high.

2. Wall Treatment

There are four types of wall in the sampling universe: log corner-timbering, box frame, balloon frame, and concrete block (Figure 4.2). All log buildings in the BSFNRRA followed the construction technique brought to America by German immigrants (Riedl et al. 1976:25; Kniffen and Glassie 1966:56,65). This type of log corner-timbered wall is made of hewn (planed on at least two sides) or unhewn timbers lying horizontally, notched, and fitted in alternating tiers at the corners of the building (Kniffen and Glassie 1966:53). The Scotch and Irish were the first ethnic groups to extensively adopt this log construction technique (Wright 1958:111).

Three notching techniques (Figure 4.3) were used in the corner-timbered walls of the buildings in the sampling universe: half-dovetail notching occurred in 94 percent of the buildings; saddle notching occurred in 6 percent of the buildings; and "V" notching occurred in 6 percent of the buildings. The percentages reflect each time a particular technique was used in a building. Building number BS50 was built using two different techniques (half dovetail and saddle).

> The half-dovetail notch is a type of corner notching in which the top side of the end of the log is sloped down toward the outside of the joint, leaving the wider remaining portion to the inside of the wall...The saddle notch is a saddle-shaped depression near the end of the log, on the top and/or the bottom of the log...The "V" notch is an inverted V shape in the top and bottom of the end of the log (Jordan 1978:207-209).

The box frame wall consists of vertical planks nailed over a wall frame (Figure 4.2E). The "frame" consists of posts or studs in each of the corners. The vertical planks (Figure 4.4A) and these corner posts are the load carrying elements.

The basic characteristic of balloon framing (Figure 4.2D) is the series of continuous studs that reach all the way from the sill plate to the top plate (Figure 4.5). The "studding" becomes the weight supporting element of the wall. Vertical or horizontal (Figure 4.4B) planks are nailed over the frame for the exterior wall unless it is to serve as sheathing for an exterior finish such as beveled wood (Figure 4.4C), rolled brick (Figure 4.4E), or rolled stone siding (Figure 4.4F). The concrete block wall consists of concrete blocks mortared together to form a wall.

3. Roof Treatment

There are four basic roof types in the sampling universe (Figure 4.6): hip, gable, single-slope, and flat. The hip roof is a four-slope roof having its surface in four planes. Each plane or slope extends from the top plate to the roof ridge or peak. The rafters are poles or milled lumber (Figure 4.7) covered with spaced wood-board roof sheathing or closed wood-board roof sheathing (Figure 4.7). Wood shake, rolled asphalt roofing, individual asphalt shingles, rolled tin, or corrugated tin roofing material was used in the study population. The gable roof is a two-slope roof having its surface in two planes. Each plane or slope extends from the top plate to the roof ridge. The hipped gable roof is a subtype of the gable roof. The hipped gable roof is a four-slope roof having its surface in four planes. Two of the slopes are opposite each other and extend from the top plate to the roof ridge. The other two slopes or planes are opposite to each other but do not extend to the top plate from the roof ridge. Pole or milled rafters in the gable or hipped gable types were covered with spaced wood-board roof sheathing, closed wood-board roof sheathing (Central Mortgage and Housing Corporation n.d.:52), or rib poles. Rib poles are the "roof supports reaching from one gable to the other, parallel to the roof ridge, supporting the rafters or roof boards" (Jordan 1978:208). Wood shake, rolled asphalt roofing, individual asphalt shingles, rolled tin, or corrugated tin roofing material was used in the study population. The single-slope shed roof is a single sloping roof having its surface in one back sloping plane (Central Mortgage and Housing Corporation n.d.:1912). The rafters are pole or milled lumber covered with spaced wood-board roof sheathing, closed wood-board roof sheathing, or rib poles. Wood shake, rolled asphalt roofing, individual asphalt shingles, rolled tin, or corrugated tin roofing material was used in the sample. The flat roof type is a non-slope roof having its surface in one plane. The rafters are pole or milled lumber covered with spaced wood-board roof sheathing or closed wood-board roof sheathing. Rolled asphalt roofing was used on the only building with a flat roof in our study population.

Porch roof profiles fall into three types (Figure 4.8): continuous pitch, break in pitch, and offset pitch (Jordan 1978:86; Riedl et al. 1976:86).

B. STANDING BUILDINGS AND CONSTRUCTION METHODS

This section is a discussion of the types of standing buildings and construction methods used in the BSFNRRA sampling universe. Henry Glassie's definition of "type" will be used for this project, "...a consistent aggregate of formal components" (Glassie 1969:9). "The standard list of components employed in most folk architectural typologies includes such primary characteristics as floor plan, chimney placement and number of stories, rather than such secondary characteristics as trim and appendages in the form of porches and additions" (Riedl et al. 1976:15).

The distinction between the formal components that are incorporated within a building and the technological factors should also be made (Riedl et al. 1976:15).

> Whereas formal components are stylistic in nature and represent a conversion of mental constructs into a tangible form, technological factors are concerned with the methods and materials utilized in the actual construction process. This line of reasoning is in congruence with that of Kniffen who has stated, 'Building with logs is a mode of construction, not an architectural type, while a particular type may be produced in any of several media, log, frame, stone or brick' (Kniffen 1965:561; Riedl et al. 1976:15).

The sampling universe of standing buildings in the BSFNRRA consists of the following types of buildings (Table 4.1): 6 single-pen houses (BS26, BS50A, BS51, H071, BS30, H074); 4 double-pen houses (H002, H008, BS47, H032); 1 saddlebag house (BS41); 6 Cumberland houses (B084, B087, B104, B105, B107, H018); 1 two-story frame house (BS15); 1 single-slope roof shed (H033A); 4 single-crib barns (BS40E, BS40I, H007A, ON06B); 2 double-crib barns (B081, H007); 1 four-crib barn (BS40); 1 side-opening English barn(BS50); 1 transverse crib barn (H033).

C. THE HOUSES

Glassie (1968b) has described a folk architecture complex for the Blue Ridge and Allegheny Mountains lying to the east of the project area, and noted that the Cumberland Mountains differed considerably from this complex. Our investigations in the Big South Fork area support Glassie's contention. While the sample of cabins documented in this present study is extremely small and makes definitive comparison difficult, we feel that some limited conclusions can be drawn with respect to differences between the Southern Mountain Folk Architectural Complex (Glassie 1968b) and the as yet unnamed folk architecture complex which characterizes the Cumberland area and regions lying further west.

Two principal types of cabins have been described by Glassie as characteristic of the Southern Mountain Folk Architectural Complex -- the square cabin and the rectangular cabin. The sample of square cabins in the project area appears to correspond closely with those outlined by Glassie. In the Big South Fork project area, the type of rectangular cabins described by Glassie is entirely lacking. Glassie (1968b:353) characterizes the rectangular cabin as having a chimney in the gable end, a single door near the center of the front wall, and a light partition separating it into two rooms. Other house types in the project area (double-pen and Cumberland) show affinities to

the architectural style characteristic of the Normandy Reservoir area (Reidl, Ball and Cavender 1976).

Each of the principal house types encountered in the project area is described, in turn, below. The types are described in terms of the original construction techniques without the accretions and modifications. We found very little evidence of modifications to houses in the BSFNRRA which were directly attributable to changes in family size or adaptative economic strategies. One major modification of houses was the addition of a second pen to single-pen structures. The vast majority of early (pre-1920) houses were single-pen structures. With the introduction of Cumberland houses in the post-1920 era, several single-pen structures were converted to double-pen (e.g., BS50, HO74). The other major kind of modification exhibited by houses in the project area is the addition of a kitchen at the rear of the house (e.g., B104, BS40, HO08). The addition of these kitchens represents, for the first time in the project area, a change in the use of living space; cooking and food preparation areas were segregated from sleeping areas.

All other modifications evident on existing structures are relatively minor, limited largely to siding and roofing material. The introduction of rolled brick siding in the project area may be the result of external mass culture architectural influences, but informants seemed more concerned with its insulating value rather than its appearance. Neither the major modifications nor the rolled brick siding represent the introduction of high style architecture into the project area. Our examination of the architectural resources in the BSFNRRA revealed that there was no substantial influence from non-traditional mass culture architecture in the area prior to the introduction of new architectural styles after World War II.

1. <u>Single-Pen House</u> (Montell and Morse 1976; Jordan 1978; Hutslar 1977; Kniffen 1965; Wilson 1970)

The single-pen house is the basic unit of construction from which many different folk house types and subsequent modifications evolved. The single-pen house consists of one room, either rectangular or square (Glassie 1968b:353; Jordan 1978:108). The house can be no more than one story-and-a-half tall.

The rectangular single-pen house pre-dates the square version (Jordan 1978:108), and is generally thought to have evolved from the traditional Scotch-Irish stone and mud house. The idea was later picked up and utilized by the German settlers in the New World (Glassie 1968b:353, 355; Jordan 1978:108).

> The older of these types (single-pen) has a rectangular shape, with the dimensions of the front and rear walls exceeding that of the side gable walls by five feet or more. Typical measurements of these pens are 22 feet by 16 feet, 24 feet by 16 feet, 20 feet by 15 feet, or 30 feet by 18 feet (Jordan 1978:108).

The Scotch-Irish and Germans of the Middle Atlantic colonies introduced the rectangular floor plan. Jordan attributes the following characteristics to the Scotch-Irish rectangular floor plan: gable-end chimney; centered front door directly opposite a rear door; pen is often partitioned into two rooms; single story, usually with a loft; and side-facing gables (Jordan 1978:108-109). He characterizes the German version of the rectangular shaped house with the following attributes: pen subdivided by partitions into three rooms; front door is off-center; a central chimney is located on one of the partition walls; story-and-a-half; and side-facing gables (Jordan 1978:109-110).

Glassie states that the rectangular log house usually measures 16 feet by 22 feet or 16 feet by 24 feet. He lists the following characteristics for the rectangular form: a gable roof with an external chimney in the center of one gable end; only one room (frequently divided by a light partition into two rooms, the larger of which contains the fireplace and front door); a front door located near the center of the front wall or else displaced on the front wall toward the chimney end of the house; a rear door in line with the front door (Glassie 1968b:353).

Jordan agrees with Glassie's assumption that the square single-pen house is an English type. He adds that the type "descended from the one-bay house of Old England" (Jordan 1978:111; Glassie 1968b:351).

A bay is sixteen feet square in British terminology. The sixteen-foot unit, also called a rod, is supposedly wide enough to house four oxen side-by-side, a desirable characteristic in Medieval times in England, before the housing of people and domestic animals under one roof was made illegal (Glassie 1963:7-8). This simple one-room house was introduced into America, as a frame structure, by the English colonists of the Virginia and Maryland Tidewater (Wilson 1971:10). It was copied in log construction in the back country of Virginia where the Tidewater and Middle Atlantic architectural traditions met and mixed. Wherever square log pens out-number rectangular ones, the Tidewater floorplan tradition can be said to prevail over the Middle Atlantic (Glassie 1968b:353-355).

Most of the square, or nearly square, floor plans measure 16 feet by 16 feet to 18 feet by 18 feet, according to Jordan. He attributes the following characteristics to the square or nearly square single-pen house: the pen is rarely subdivided by partitions; side facing gables; chimney centered in one gable end (Jordan 1978:111).

Glassie attributes the following characteristics to the square, or nearly square, single-pen house with dimensions generally measuring 16 feet by 16 feet or 16 feet by 18 feet: a gable roof and an external chimney in the center of one gable end; is rarely partitioned into two rooms; the front door is located near the center of the front wall or displaced on the front wall away from the chimney end of the house; occasionally there is a second door in the gable end opposite the chimney; there is no rear door (Glassie 1968b:349).

There are 6 single-pen houses in the BSFNRRA sampling universe. One of the houses (BS30) is box frame construction and has undergone extensive modification making exact dimensions of the original single-pen unit approximations at best (Table 4.2). The other 5 buildings, all of log construction, show the old English influence of the Virginia Tidewater's traditional square floor plan. None of the houses are more than a story-and-a-half and all of the log houses have side-facing gables (Table 4.3). Four of the log houses (BS26, BS50A, BS51, H074) show the German influence in the off-center placement of the front door (Hutslar 1977:2; Jordan 1978:108). The characteristic Scotch-Irish center placement of the front door was used in log house number H071.

The 6 single-pen houses represent 21 percent of the total number of buildings and 33 percent of the total number of houses in the BSFNRRA sampling universe (Table 4.3). The mean width of the houses is 5.53M (18'2") and the mean depth is 5.26M (17'3"). The mean width/depth ratio is 1.06 to 1 (Table 4.4). Single-pen houses are illustrated in Figures 4.9 through 4.17.

2. Double-Pen House (Jordan 1978; Hutslar 1977; Wright 1958; Riedl et al. 1976; Montell and Morse 1976)

The basic double-pen house (either log or frame construction) is two rooms wide on the front; one or two rooms deep; and never more than a story-and-a-half (Montell and Morse 1976:18). The chimney or flue can be centrally located or at one or both gable ends. Although the literature varies as to whether the double-pen house has one or two front doors, the term "double-pen" will be used to describe houses with one front door, and the term "Cumberland" will be used to describe houses with two front doors (Riedl et al. 1976:80).

Riedl capsulated the following review of literature regarding the double-pen house (Riedl et al. 1976:79-80).

(1) Frame dwelling 2 rooms wide by 1 (or 2) room(s) deep; 1 front door; central chimney (e.g., Glassie 1968a: Fig.30 I, J; Meyer 1975:63).

(2) Frame dwellings 2 rooms wide by 1 (or 2) room(s) deep; 1 front door; gable chimney(s) (e.g., Glassie 1968a: Fig. 30 D; Meyer 1975:63).

(3) Frame dwellings 2 rooms wide by 1 (or 2) room(s) deep; 2 front doors; central chimney (e.g., Glassie 1968a: Fig. 30 F, H; Meyer 1975:63).

(4) Frame dwelling 2 rooms wide by 1 (or 2) room(s) deep; 2 front doors; gable chimney(s) (e.g., Glassie 1968a: Fig. 30 A, B, C, E; Meyer 1975:63; Newton 1971:7)

(5) "Saddlebag" log dwelling; 1 log pen added to another, each with 1 front door; central chimney (e.g., Glassie 1968a: Fig.23 A, B, F, Fig. 30C).

(7) Two conjoined log pens, one added to the other; each with 1 front door; gable chimney(s) (e.g., Glassie 1968a: 78-79, Fig. 23 C, D; Wilson 1974:67).

(8) "Dog-trot" log dwelling; 2 spatially distant log pens conjoined under a common roof; central passageway; gable chimney(s) (e.g., Scofield 1936:232; Weslager 1969:71, 82, 303; Wright 1958 Fig. 1).

(9) Undefined by author (e.g., Sutherland 1972:24).

The basic double-pen house constituted 61.2 percent of the "older" frame houses in Riedl's Coffee County, Tennessee, survey (Riedl et al. 1976:80). The ten double-pen houses in the BSFNRRA constituted 30 percent of the frame houses, 43 percent of the log houses, and 36 percent of the total number of buildings in the sampling universe (Table 4.1). These figures include the Cumberland house sub-type (described below) in the total number of double-pen houses. The remaining four basic double-pen houses (H002, H008, BS47, H032) constitute 40 percent of the total number of double-pen houses in the sample.

> These homes were characterized by their basic rectangular configuration, sheet metal covered gable roofs oriented to the structure's long axis and two pens (i.e., frame enclosures-rooms) equal or nearly so in size with their front entrance(s) located on the long axis wall opposite the gables. Foundations, best described as rudimentary, usually consisted of slabs of limestone fieldrock situated only at the corners of the pens. Chimneys and flues were

built only of brick. Using the number of front doors as a structural component, the double-pen dwellings could be divided into two distinct subtypes: (1) those with one front door and (2) those with two front doors (Riedl et al. 1976:80).

Riedl's description of the double-pen house cited above is applicable to the BSFNRRA except for the following differences: rolled asphalt and asphalt shingle were also used for roof covering in the BSFNRRA; sandstone fieldrock and concrete block were used for foundations instead of limestone. House number H002, while clearly atypical, is classified as a double-pen house even though its floor plan may resemble the Cumberland house sub-type. Although H002 is two rooms wide and has two front doors, the original building was a single-pen log house. A single-pen log addition on one gable end made the house a double-pen. A rear plank addition was built much later. Table 4.5 provides a selected list of architectural attributes for the double-pen houses contained in the sample. Double-pen houses are illustrated in Figures 4.18 through 4.23.

3. <u>Cumberland House</u> (Jordan 1978; Riedl et al. 1976; Wells 1978)

A distinction is made between the double and single front door double-pen house. Riedl used the number of front doors as the "primary diagnostic criterion" in making the distinction between the Cumberland house and the double-pen house. He stops short of calling the Cumberland house (the double-door sub-type) <u>the</u> characteristic folk house type of Middle Tennessee.

> We have felt justified in drawing a distinction between the various recorded examples of double-pen frame dwellings using the number of front doors as a primary diagnostic criterion. The variety possessing only a single front door we will continue to refer to as a "double-pen" dwelling. The subtype with two front doors, however, has been tentatively labeled the "Cumberland" house because its two door component is a material culture trait which appears to be more diagnostic of the Middle Tennessee region than other portions of the United States (Riedl et al. 1976:81).

The Cumberland house is two rooms wide, one or two rooms deep and generally of frame construction. The chimney or flue is centrally located between the two front rooms or at one or both gable ends. It is never more than a story-and-a-half, and each front room has a front door. Wells uses the label "double-door Cumberland" house to describe houses with these same features (Wells 1978:n.p.).

> Intensive survey efforts have recognized this late house form as important on the Kentucky landscape as well . . . . Almost invariably constructed of wood, either "boxed" or framed and sheathed in weatherboards, the Cumberland house enclosed a two-room or hall-parlor plan with a center stove flue. Each room is served by separate doorways, indicating that the double-cell Cumberland house is a late multiplication of the "pen" concept of spatial arrangement . . . . A rear shed is the most common form of spatial extension, although ells do appear (Wells 1978:n.p.).

The double-cell frame house evolved from the "saddlebag" or "dogtrot" house types. The predominance of central chimneys is used as evidence to show a relationship between the log saddlebag and double-cell frame house (Riedl et al. 1976:88).

> The predominance of central chimneys would give more credence to an evolution out of the "saddlebag," a home characterized by two front doors

> resulting from a second log pen being added to the chimney side of the original single pen (Glassie 1968a:78; Wilson 1974:67). It is logical to conclude that the builders of the frame double-pens had the mental template of the "saddlebag" in mind during the construction process; they were simply using different materials -- sawn timber as opposed to logs. Thus, the tradition of two front doors was maintained unreflectively even though it would have been a simple matter to construct a double-pen entirely of frame with only one front door (Riedl et al.1976:88).

Riedl summarized the following sources in which the Cumberland house has been documented.

> ...the Rocky Mountain regions of the western United States (Fife 1957:104J); Lorman Community, Jefferson County, (south-central) Mississippi (Ferris 1973:71-73, 76-78, 80); Louisiana (Newton 1971:7-8; therein termed "saddlebag"); the Shawnee Hills region of southern Illinois (Meyer 1975:63); and the Catawba Indian Reservation near Rock Hill, York County, (north-central) South Carolina (Speck 1946: Fig. 26). In the classic study of Alabama tenant farming life, Let Us Now Praise Famous Men, James Agee describes quite well what is undoubtedly a Cumberland house which appears to have originated as a single-pen frame dwelling with a later gable end frame addition (Agee and Evans 1966:170-172, unpaginated plate; see also De Capo Press 1975: negative number LC-USF342-8141A), a situation analogous to the evolution of "saddlebag" log dwellings. ... Additional but unquantified examples of the Cumberland house have been observed by one or more of the present authors near Joelton, Davidson County, (north-central) Tennessee; in Knoxville, Knox County, (eastern) Tennessee; near the Foscoe Community, Watauga County, (western) North Carolina; and in Dooly County, (south-central) Georgia, about six miles north of Cordele (Riedl et al. 1976:86-87).

The 6 Cumberland houses (B084, B087, B104, B107, B105, H018) represent 35 percent of the total number of houses and 60 percent of the total number of double-pen houses in the BSFNRRA sampling universe (Table 4.1). The mean width/depth ratio of 2.18 to 1 (Tables 4.6 and 4.7) compares closely with the mean width/depth ratio of 1.92 to 1 in the Normandy Reservoir sample in Coffee County, Tennessee (Riedl et al. 1976:88).

Surveyors were unable to enter house number H018; however on the basis of information acquired, the house has been tentatively included under the Cumberland house type. The owner of the house, Ralph M. Burke, said the house has not had any additions. Photographic documentation and the otherwise overall symmetry of the house disputes Mr. Burke's claim. The left third of the house (see photo number 800601.010-36) breaks up the symmetry of the building face. If this is an addition, the house meets Meyer's criterion for the double-pen house (Meyer 1975:63). Cumberland houses are illustrated in Figures 4.24 through 4.32.

4. Saddlebag House (Jordan 1978; Hutslar 1977; Riedl et al. 1976; Vlach 1972; Montell and Morse 1976)

The basic saddlebag house, two rooms wide and one room deep, is no more than a story-and-a-half. The square or rectangular rooms are distinct entities with a central chimney and fireplace, often made of stone, that serves both rooms. Usually, each of the rooms has a door opening on the front face of the house, although some of the

oldest examples are thought to have had a single door in the center of the front face (Montell and Morse 1976:18).

The saddlebag house is an evolutionary successor of the single-pen house. It was generally formed by adding a second pen to the gable/chimney-end of the original single-pen house (Jordan 1978:116; Vlach 1972:8; Kniffen 1965:561). The saddlebag house can be initially constructed as a two-room dwelling (Vlach 1972:8; Kniffen 1965:561).

The idea for the central fireplace came from the British and German colonists (Jordan 1978:117). Others give credit for the saddlebag house itself to the Tidewater Anglo-Virginians, thus claiming "British antecedents" (Glassie 1963: 12; Wilson 1974:71; Montell and Morse 1976:25).

The saddlebag house, widely distributed in the Upland South, is especially abundant in West Virginia and Kentucky (Vlach 1972:8; Kniffen 1965:561). Montell and Morse claim the saddlebag house gained wide popularity in eastern Tennessee.

The Watauga settlements of east Tennessee acted as a giant magnet and fan in attracting and disseminating saddlebag houses throughout most of Tennessee, Kentucky, the Deep South, and into portions of Indiana, Illinois and Missouri (Montell and Morse 1976:25-26).

Only one saddlebag house (BS41) (Table 4.8) was located in the BSFNRRA. It was included in the BSFNRRA sampling universe and represents 13 percent of the log houses, 9 percent of the double-pen houses; and 6 percent of the total number of houses in the BSFNRRA sampling universe (Table 4.1). No saddlebag houses were noted in the inventory of Normandy Reservoir in Coffee County, Tennessee (Riedl et al. 1976:19). This house is illustrated in Figures 4.33 through 4.35.

5. Two-Story Balloon Frame House (Not formally identified in literature reviewed).

The two-story frame house (BS15) in the BSFNRRA sampling universe does not conform or fit into any of the categories or formal types identified in the literature reviewed (Table 4.8). This house is illustrated in Figures 4.36 through 4.38.

D. THE BARNS AND OUTBUILDINGS

Buildings originally built with the intention of housing livestock (usually cattle, horses, and mules); providing storage for farm equipment; or for general storage were classified as barns or outbuildings. The barns, as a group, constituted the second largest category in the BSFNRRA sampling universe (Table 4.1). Barns represented 32 percent of the total number of buildings. Log barns represented 47 percent of the total number of log buildings in the BSFNRRA sampling universe. This compares with the Normandy Reservoir survey of traditional architecture in which 32.3 percent of the total number of log buildings were barns (Riedl et al. 1976:20). Because of the variety of floor plans appearing in the BSFNRRA, no single style may reasonably be termed "predominant."

The ancient meaning of barn is "barley house" (Jordan 1978:161). Jordan infers from this definition that the traditional barn was a granary instead of a stabling area for animals. Storage and stabling were not combined under one roof, according to Jordan, until the "so-called Agricultural Revolution" of the late eighteenth and early nineteenth century (Jordan 1978:161). Many of the barns and corn cribs in the BSFNRRA still

retain this separation of function. Other barns in the BSFNRRA contain stabling and storage areas under one roof.

The double and single-crib log barn forms gained popularity as a result of the Pennsylvanian Germans. As the barn forms moved into the Upland South they underwent modifications.

> The log barns moving southward underwent changes so regular and so directed as to provide an ideal example of progressive evolution. Climatic moderation southward may have contributed to changing attitudes as to form and function of barns. The cribs grew smaller and smaller. From serving as stables they became more and more cribs for the storage of corn. The threshing floor disappeared with a reduction in the growing of small grain and the use of outdoor facilities. Cattle and hogs went largely without shelter. Only horses and mules were sometimes stabled in the sheds that flanked the small single cribs. This diminution in size and change in function did not take place in the westward-moving current out of Pennsylvania (Kniffen 1965:563).

New types of barns developed as the position and number of cribs was manipulated (Kniffen 1965:564-567). Kniffen described the four-crib barn as being, "two double-cribs facing each other under a single roof." By closing off the side driveway in the four-crib barn it evolved into the transverse-crib barn. The resulting transverse-crib barn was a long, gable-opening center passage building with stable and storage cribs on either side of the gable-end-to-gable-end driveway.

1. Single-Slope Roof Shed (Riedl et al. 1976)

The vertical plank shed (H033A) in the sampling universe fits the generalized qualifications that Riedl used to describe the catch-all category "miscellaneous sheds" (Riedl et al. 1976:114-115). Those qualifications include a square or rectangular floor plan; horizontal or vertical wall planking; front or side door(s); back-sloping shed or gable type roof (Table 4.8).

The non-specific and changing function of the building prohibits any description beyond that of the building's physical attributes. Riedl ran into the same problem of classification by "function" in his survey of buildings (Riedl et al. 1976:115).

2. Single-Crib Barn or Outbuilding (Montell and Morse 1976; Hutslar 1977; Jordan 1978; Wright 1958; Glassie 1970)

There is a direct link from the single-crib barn back to the log granary of central Europe, from the early twentieth century to prehistoric times (Jordan 1978:162; Glassie 1965:22; Pillsbury and Kardos 1970:58; Sloane 1967:22,77; Meyer 1975:61).

The single-crib barn or outbuilding consists of a single rectangular or square room of frame or log construction. It is never more than a story-and-a-half. "Crib" refers to a single room or unit of construction with four walls that was originally intended for use other than human occupancy, such as for a barn or outbuilding.

> The roof of the single-crib barn has gables at front and rear, with a single roof ridge at right angles to the front. Almost without exception, the entrance is in the front gable, often centered in the wall but sometimes offset to one side. This door varies in size from one barn to another, but

> most commonly it is very small, nothing more than a crawlway into the grain bins. As such, the single-crib barn represents yet another survival of the ancient mesolithic European gable-entrance log structure (Jordan 1978:162).

The four single-crib barns (representing 40 percent of the total number of barns and outbuildings and 57 percent of the total number of log barns (Table 4.1) and outbuildings in the sampling universe) share the following characteristics listed above by Jordan: gable roof front and rear; single ridge at right angles to the front; entrance is in the front gable; the entrance doors are relatively small. Three of the buildings (BS40E, H007A, ON06B) have offset doors; only BS40I has a centered door in the gable end. All of the single-crib buildings have piled stone footer foundations. Table 4.9 lists some of the architectural elements present in the single-crib buildings within the project area. Three of the single-crib buildings (BS40I, BS40E, ON06B) are deeper than they are wide (mean width/depth ratio =0.94 to 1). Single-crib H007A is square (Table 4.10). Single-crib buildings are illustrated in Figures 4.39 through 4.50.

3. Double-Crib Barn (Kniffen 1965; Jordan 1978; Hutslar 1977; Glassie 1970; Montell and Morse 1976)

The double-crib barn consists of two rectangular or square rooms of log or frame construction, sharing a common roof and separated by a driveway. Glassie describes the basic criterion for the double-crib barn as being "two cribs separated by a runway which runs transversely to the ridge" (Glassie 1970:26).

The close similarity between the floor plans of the double-crib barn and dogtrot house, according to Jordan, appears to be evidence of a relationship between the two types; however, he quickly points out that the "contrasted spatial distributions warn against such a linkage" (Jordan 1978:166-167).

> The two cribs are separated by an open, roofed runway, equivalent to the passageway or hall of the dogtrot house, and the cribs and runway are covered by a single roof with side-facing gables. Entrances to the cribs generally face the runway, but occasionally one sees double-crib barns with front-facing doors. The farm wagon is parked in the runway, with convenient access to the attic haylofts, or the passage can be used as a threshing floor .... The large majority are one story in height .... The typical linear double-crib barn was transferred virtually unaltered from the Alpine German lands to America (Glassie 1968:89; Glassie 1965:28). ... Presumably Germans from the Alpine area, possibly Canton Bern in Switzerland, brought this double-crib barn to Pennsylvania in the 1700s, and it spread through the Upper South and into parts of the Gulf Coastal Plain (Jordan 1978:166-167).

The "initial concentration" of the double-crib barn (common in Appalachia) was in southeastern and south-central Pennsylvania (Jordan 1978:167; Glassie 1970:26).

> Its (double-crib barn) greatest distribution from the standpoint of both intensity and extent was southwestward through the Bluegrass into the southern Midwest (Glassie 1970:26).

Double-crib barn number H007 is a front-opening, one story, corner-timbered building with a loft area. Each crib measures approximately 13'2" X 11'6" (Table 4.11). This fits into the 10' X 10' to 18' X 18' measurement range listed for the double-crib barn (Jordan

1978:166). One open-roofed driveway, covered by a single roof with side-facing gables, separates the two cribs. Wingshed additions have been added to the original double-crib barn on the front and back.

Building number BO81 is thought to have been built originally as a double-crib barn. The one story corner-timbered building has a loft area and front-facing doorways on each crib. The northeast crib is square (8'11" X 8'11") and the northwest crib is rectangular (9'10" X 8'11"). Each of these cribs falls short of Jordan's lower limit crib estimate of 10' X 10'.

The addition of the third log crib and the cantilevered roof running perpendicular instead of parallel to the original double-crib barn make this an unusual building in terms of additions. The third crib (10'8" X 10'8") has 2 doorways: one facing the gable end and the other directly opposite, facing the inner driveway. The roof is cantilevered on the southeastern gable end (Table 4.11).

These two double-crib barns represent 7 percent (Table 4.1) of the total number of buildings and 20 percent of the total number of barns and outbuildings in the BSFNRRA sampling universe. The four cribs in the two original double-crib barns have a mean width/depth ratio of 0.97 to 1 with a standard deviation of 0.09 (Table 4.12). Double-crib barns are illustrated in Figures 4.51 through 4.56.

4. Four-Crib Barn (Montell and Morse 1976; Jordan 1978; Kniffen 1965)

The four-crib barn is made up of 4 square or rectangular rooms, one at each corner of a square floor plan. Each room is separated from each of the other three by a driveway running gable end to gable end and another driveway running side to side. Jordan describes the four-crib barn as a square "with a log crib at each corner and two intersecting runways at the center. A huge roof covers the entire structure, and gables face the front and rear" (Jordan 1978:168). Kniffen said he thought of the four-crib type as "two double-cribs facing each other under a common roof" (Kniffen 1965:564).

The four-crib barn probably originated in southeastern Tennessee along the Tennessee River (Montell and Morse 1976:68). It evolved out of an enlargement of the double-crib barn and later developed into the transverse-crib barn (Jordan 1978:168; Montell and Morse 1976:68; Kniffen 1965:564-566). The "historic center of concentration" for the four-crib barn was along the Cumberland and Obey Rivers in northeastern Tennessee (Montell and Morse 1976:68).

> . . . these barns (four-crib) are composed of four single log pens (cribs), usually used for stabling purposes, separated by driveways extending from gable end to gable end and from side to side. The earliest form of these barns consisted of rectangular cribs measuring about ten feet by ten feet and possessing doors which usually opened into each driveway. More recent barns of this type are composed of pens (cribs) which are virtually square, driveways of equal width, and doors which open into the gable-to-gable driveway (Montell and Morse 1976:68).

Building number BS40 is the only four-crib barn type in the BSFNRRA sampling universe. It represents 4 percent of the total number of buildings and 10 percent of the total number of barns and outbuildings in the sampling universe (Table 4.1). The barn's relatively recent construction date of 1930 bears out the characteristics noted above by Montell and Morse for "recent" four-crib barns: 4 square cribs (3.40 X 3.40M);

driveways of equal width (3.50 X 10.30M); all 4 crib doors open into the gable-to-gable driveway. This barn is illustrated in Figures 4.57 through 4.59.

5. Transverse-Crib Barn (Offset Hallway) (Montell and Morse 1976; Kniffen 1965)

The transverse-crib barn, either of log or frame construction, is two or more rooms deep and the cribs generally run on each side of the driveway. The driveway runs gable end to gable end.

> It was an easy transition from the four-crib barn to what is called here the transverse-crib barn, simply by adding cribs to occupy the side openings, leaving a long, gable-opening structure with passage through the center, stables and storage provided by the cribs on either side (Kniffen 1965:564).

The drive-in corn crib, with its single rectangular crib and open-sided driveway, as well as the four-crib barn may be responsible for the development of the transverse-crib barn (Montell and Morse 1976:68). The transverse-crib barn is the most common barn variety found in Kentucky and the Upper South (Montell and Morse 1976:68).

The "offset-hallway" barn (H033) is a variation of the transverse-crib barn. Like the transverse-crib barn, the driveway runs gable end to gable end. The difference comes in that the driveway is offset along one wall and has cribs running on only one side of the driveway.

> The category herein termed "offset-hallway" or "milk barn" includes a variety of structures exhibiting a hallway extending along the long axis of the barn and facing either a row of stalls or feed troughs located adjacent to the opposing long axis wall. A loft for hay storage was usually, but not always, located above the ground floor. Our use of the term "milk barn" should not be construed as indicating that each of these barns was in fact used for milking cattle, or that our use of the term is necessarily the sense in which a dairyman would use it (Riedl et al. 1976:103).

H033 is an offset-hallway form of the transverse-crib barn. It has an offset driveway with a series of stalls running along only one side of the gable to gable driveway. The barn has a large loft area for hay storage. Building number H033 represents 4 percent of the total number of buildings and 10 percent of the total number of barns and outbuildings in the BSFNRRA sampling universe (Table 4.1). This barn is illustrated in Figures 4.60 through 4.62.

6. Side-Opening English Barn (Montell and Morse 1976; Kniffen 1965)

The side-opening English barn can be of log or frame construction and is two or more rooms deep and two or more rooms wide. The driveway opening is situated on the side of the barn instead of on the gable end. The driveway runs side to side instead of gable end to gable end.

> The English barn is composed of two stabling areas measuring about nine by twenty-four feet located across the driveway from each other...The driveway of the hay barn extends through the center of the barn from side to side rather than from end to end, as is the case with transverse-crib barns. There is an open hay loft at the second level on each side. The driveway is generally closed off at both ends by large double doors, while

> smaller doors lead from the driveway into the livestock stables (Montell and Morse 1976:76).

The English barn (although common in England, Scotland, and Germany) is relatively scarce in Kentucky (Montell and Morse 1976:76).

> It (English barn) was carried to America by early immigrants and diffused westward from such focal points as Puritan New England, southeastern Pennsylvania, and the Tidewater and Piedmont areas of the South Atlantic states (Montell and Morse 1976:76).

Building number BS50 would appear to exemplify the formative link between the four-crib barn and the transverse-crib barn except for the fact that the ridgeline of the gable roof runs perpendicular instead of parallel to the driveway. The overall floor plan of the barn is nearly square (9.80 X 9.62M). There are four log cribs (each measuring approximately 3.10 X 3.10M) at each of the corners. What would have been the side driveway (assuming the ridgeline ran parallel to the present driveway) is interrupted by a log wall facing the present driveway. The wall is integrated into the crib walls on either side. The outside wall of the would-be side driveway is plank construction.

Given the reality that the ridgeline does run perpendicular instead of parallel to the driveway, BS50 is tentatively categorized as the only side-opening English barn in the BSFNRRA. There are two stable/storage areas (each measuring approximately 10' X 32') located across the driveway from each other. Each of the areas is broken up into 3 stalls. The driveway runs from side to side instead of gable end to gable end. There is an open hay loft at the second level on each gable end. There are no doors closing off each end of the driveway. Crib doors open into the driveway. BS50 represents 4 percent of the total number of buildings and 10 percent of the total number of barns and outbuildings in the BSFNRRA sampling universe (Table 4.1). This barn is illustrated in Figures 4.63 through 4.65.

Table 4.1
Function, type, date, and construction of BSFNRRA buildings

Building #	Function	Single -pen	Double -pen	Cumberland	Two -story	Single -crib	Double -crib	Four -crib	Other	Date	Construction
B084	House			X						C. 1920	Frame
B081	Barn						X			Pre-1930	Log
H074	House	X								C. 1880	Log
H071	House	X								C. 1880	Log
BS26	House	X								1881	Log
BS40	Barn							X		C. 1930	Log
BS40E	Corn crib					X				C. 1820	Log
BS40I	Smithy					X				C. 1820	Log
BS41	House								Saddlebag	1816/1820	Log
BS50	Barn								Side-open English	C. 1900	Log
BS50A	Outbuilding	X								C. 1900	Log
BS51	House	X								C. 1900	Log
ON06B	Outbuilding					X				1870	Log
H002	House		X							1879	Log
H007	Barn						X			1929	Log
H007A	Corn Crib					X				1929	Log
H008	House		X							1929	Log
B087	House			X						1900-25	Frame
B104	House			X						1925	Frame
B105	House			X						1926-27	Frame
B107	House			X						1905	Frame
BS15	House				X					Pre-1930	Frame
BS30	House	X								1905	Frame
BS47	House		X							Pre-1930	Frame
H018	House			X						1924	Frame
H032	House		X							1920-1930	Frame
H033	Barn								T-crib	1920-1930	Frame
H033A	Outbuilding								Shed	1920-1930	Frame

Table 4.2
Selected list of architectural elements
for the single-pen houses in sampling universe

Building number	BS30	BS26	BS50A	BS51	H071	H074
Foundation treatment						
Continuous				X		
Footer	X	X	X	X	X	X
Pier						
Wall treatment						
Corner-timber		X	X	X	X	X
Box-Frame	X					
Balloon-Frame						
Concrete Block						
Roof Treatment						
Gable	X	X	X	X	X	X
Hipped						
Hipped gable						
Shed						
Flat						
Porch roof profile						
Offset		X		X		X
Continuous	X					
Break-in pitch						
None			X		X	

Table 4.3
Selected list of materials and elements
for the single-pen houses in sampling universe

Building number	BS26	BS50A	BS51	H071	H074	BS30
Chimney placement						
Gable-end	X	X	X			
Central						
Floorplan						
Square	X	X	X	X	X	
Rectangular						
Side-facing gable	X	X	X	X	X	
Number of stories						
One-and-half	X	X	X	X	X	
One						X
Front door placement						
Center				X		
Off-center	X	X	X		X	
Construction material						
Log	X	X	X	X	X	
Frame						X
Notching technique						N/A
Half-dovetail	X	X	X	X	X	
"V"						
Saddle						

N/A - Not applicable.

Table 4.4
Sample of single-pen house measurements

ID#	Property owner	Width(W)	Depth(D)	W/D Ratio
BS30	M.P. Estes	5.35M	4.40M	1.22 to 1
BS26	Noble E. Smith	5.00M	5.00M	1.00 to 1
BS50A	Charles R. Slavens	5.50M	5.25M	1.05 to 1
BS51	Charles R. Slavens	6.10M	5.50M	1.11 to 1
H074	Raymond Rosenbaum	4.80M	4.80M	1.00 to 1
H071	Maxine E. Loudin	6.40M	6.40M	1.00 to 1

Mean width = 5.53M with a standard deviation of .3
Mean depth = 5.26M with a standard deviation of .5
Mean W/D Ratio = 1.06 to 1 with a standard deviation of .07

Table 4.5
Selected list of architectural elements
for the double-pen houses in sampling universe

Building number	H008	BS47	H002	H032
Foundation treatment				
Continuous				X
Footer	X	X	X	
Pier				
Wall treatment				
Corner-timber	X		X	
Box-frame		X		X
Balloon-frame				
Concrete block				
Roof treatment				
Gable	X		X	X
Hipped				
Hipped gable				
Shed		X		
Flat		X		
Porch roof profile				
Offset	X			
Continuous				
Break-in pitch				
None		X	X	X

Table 4.6
Comparison of Cumberland houses, BSFNRRA
and Normandy Reservoir projects

BSFNRRA Cumberland house measurements

ID#	Property owner	Width(W)	Depth(D)	W/D Ratio
B084	Delmus Watson	9.75M	4.42M	2.2 to 1
B087	Nancy Susie Watson	9.75M	4.50M	2.2 to 1
B104	Alfred King	9.80M	4.40M	2.2 to 1
B107	Irene Hill/Ledbetter	9.75M	4.88M	2.0 to 1
B105	Eldred King	9.80M	4.20M	2.3 to 1

Mean width = 9.77M (32'1") with a standard deviation of .03
Mean depth = 4.48M (14'8") with a standard deviation of .25
Mean W/D Ratio = 2.18 to 1 with a standard deviation of .11.

Normandy Reservor, Coffee County, Tennessee
Cumberland house measurements (Riedl et al. 1976:88)

ID#	Property owner	Width(W)	Depth(D)	W/D Ratio
102	Vera Gunn	32'5"	14'2"	2.29 to 1
104	Sterling Shelton	26'3"	15'2"	1.73 to 1
904	Lem Parks	30'2"	20'6"	1.47 to 1
1003	C. Newman Shelton	28'2"	13'2"	2.14 to 1
1601	Kenneth F. Smith	32'0'	16'2"	1.98 to 1

Mean width = 29'10"
Mean depth = 15'10"
Mean W/D Ratio = 1.92 to 1.

Table 4.7
Selected list of architectural elements
for the Cumberland houses in sampling universe

Building number	B084	B087	B104	B105	B107	H018
Foundation treatment						
Continuous						
Footer		X	X	X	X	X
Pier	X					
Wall treatment						
Corner-timber						
Box-frame	X	X	X	X	X	
Balloon-frame						X
Concrete block						
Roof treatment						
Gable	X	X	X	X	X	X
Hipped						
Hipped gable						
Shed						
Flat						
Porch roof profile						
Offset			X	X		
Continuous						X
Break-in pitch	X	X			X	

Table 4.8
Selected list of architectural elements
for miscellaneous houses* and barns** in sampling universe

Building number	BS15	BS41	BS40	BS50	H033	H033A
Foundation treatment						
Continuous	X					
Footer		X	X	X	X	X
Pier	X					
Wall treatment						
Corner-timber		X	X	X		
Box-frame					X	X
Balloon-frame	X					
Concrete block						
Roof treatment						
Gable		X	X	X	X	X
Hipped	X					
Hipped gable						
Shed						
Flat						
Porch roof profile			N/A	N/A	N/A	N/A
Offset		X				
Continuous						
Break-in pitch						
None	X					

N/A - Not applicable

- * Two-story balloon house (BS15)
- * Saddlebag log house (BS41)
- ** Four crib barn (BS40)
- ** Side-opening English barn (BS50)
- ** Transverse crib barn (H033)
- ** Single-slope shed (H033A)

Table 4.9
Selected list of architectural elements
for the single-crib barns in sampling universe

Building number	BS40E	BS40I	H007A	ON06B
Foundation treatment				
Continuous				
Footer	X	X	X	X
Pier				
Wall treatment				
Corner-timber	X	X	X	X
Box-frame				
Balloon-frame				
Concrete block				
Roof treatment				
Gable	X	X	X	X
Hipped				
Hipped gable				
Shed				
Flat				
Porch roof profile		N/A	N/A	N/A
Offset				
Continuous				
Break-in pitch				
None	X			

N/A - Not applicable.

Table 4.10
Measurements of single-crib barns
in the sampling universe

ID#	Property owner	Width(W)	Depth(D)	W/D Ratio
BS40I	Joe R. Simpson	4.30M	4.40M	.98 to 1
BS40E	Joe R. Simpson	4.80M	4.90M	.98 to 1
H007A	Clara S.B. Campbell	4.20M	4.20M	1.0 to 1
ON06B	Robert D. Tappley	3.70M	4.30M	.86 to 1

Mean width = 4.25M with a standard deviation of .03
Mean depth = 4.45M with a standard deviation of .26
Mean Width/Depth Ratio = .96 to 1 with standard deviation of .05

Table 4.11
Selected list of architectural elements for double-crib barns in sampling universe

Building number	B081	H007
Foundation treatment		
Continuous		
Footer	X	X
Pier		
Wall treatment		
Corner-timber	X	X
Box-frame		
Balloon-frame		
Concrete block		
Roof treatment		
Gable	X	X
Hipped		
Hipped gable		
Shed		
Flat		
Porch roof profile	N/A	N/A
Offset		
Continuous		
Break-in pitch		
None		

N/A - Not applicable.

Table 4.12
Measurements of individual cribs
in double-crib barns in the sampling universe

ID#	Property owner	Width(W)	Depth(D)	W/D Ratio
H007	Clara S. Campbell	3.50M	4.00M	.88 to 1
		3.50M	4.00M	.88 to 2
B081	National Forest Service	2.70M	2.70M	1.00 to 1
		3.00M	2.70M	1.11 to 1

Mean width = 3.18M with a standard deviation of .34
Mean depth = 3.35M with a standard deviation of .65
Mean Width/Depth Ratio = .97 to 1 with standard deviation of .09

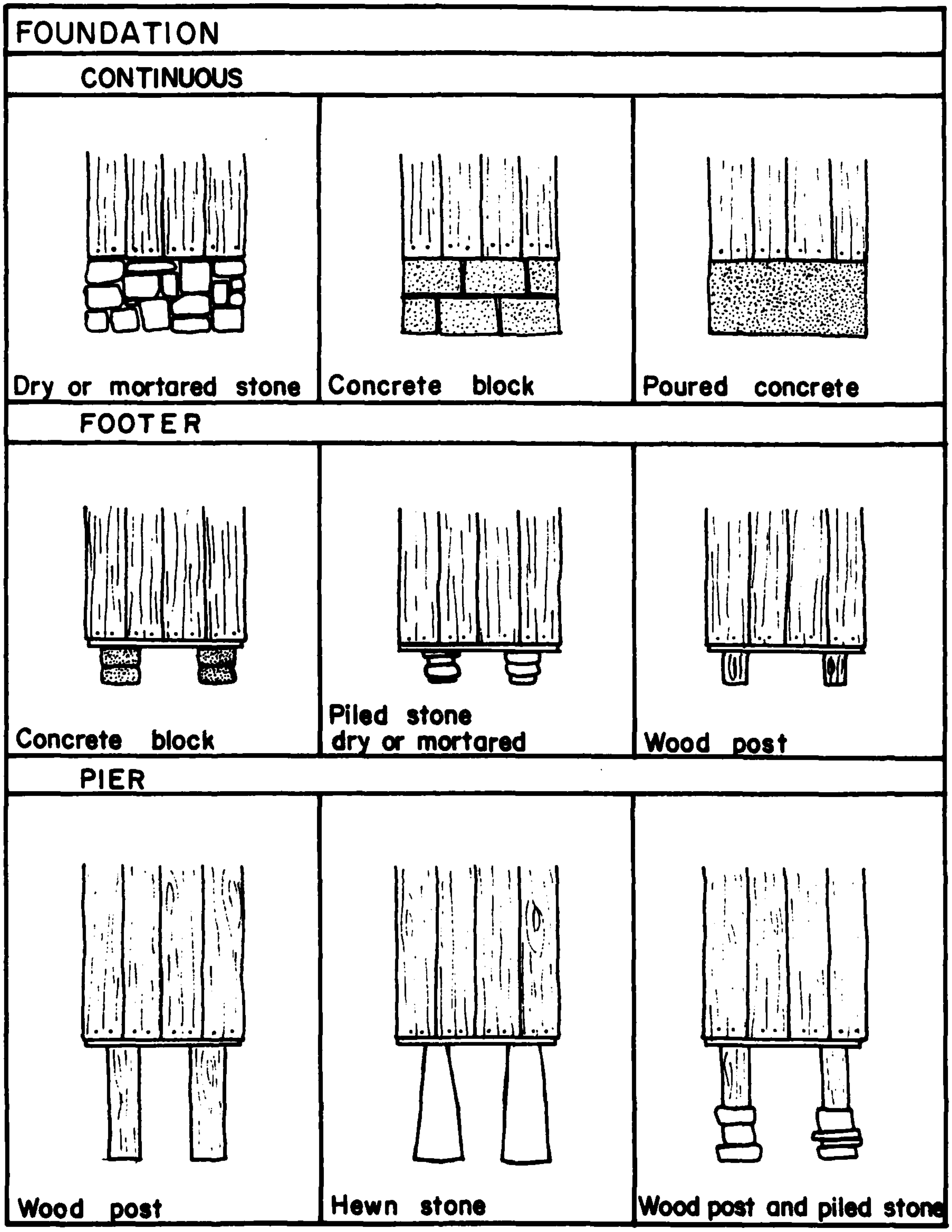


Figure 4.1. Foundation types.

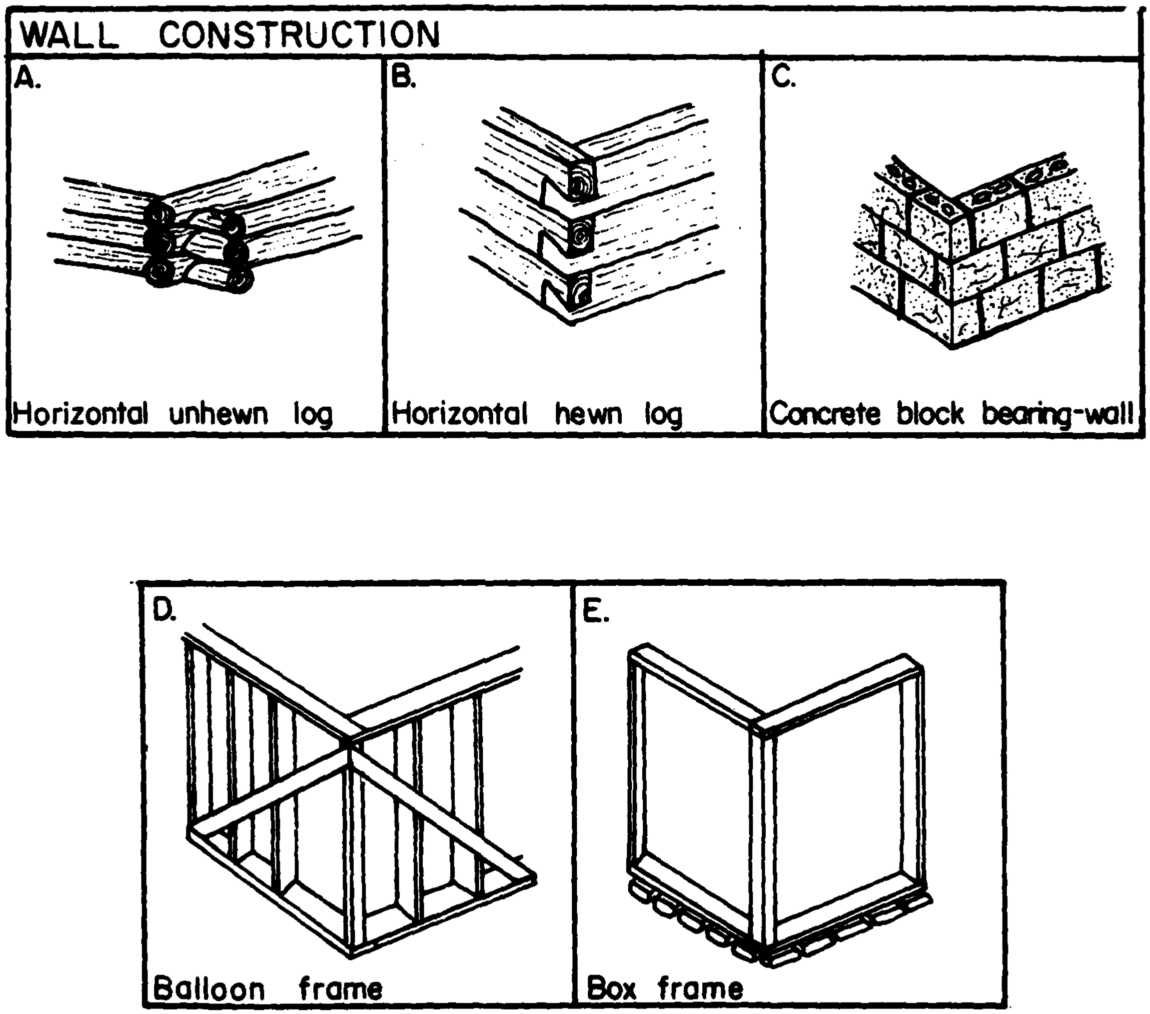


Figure 4.2. Wall construction methods.

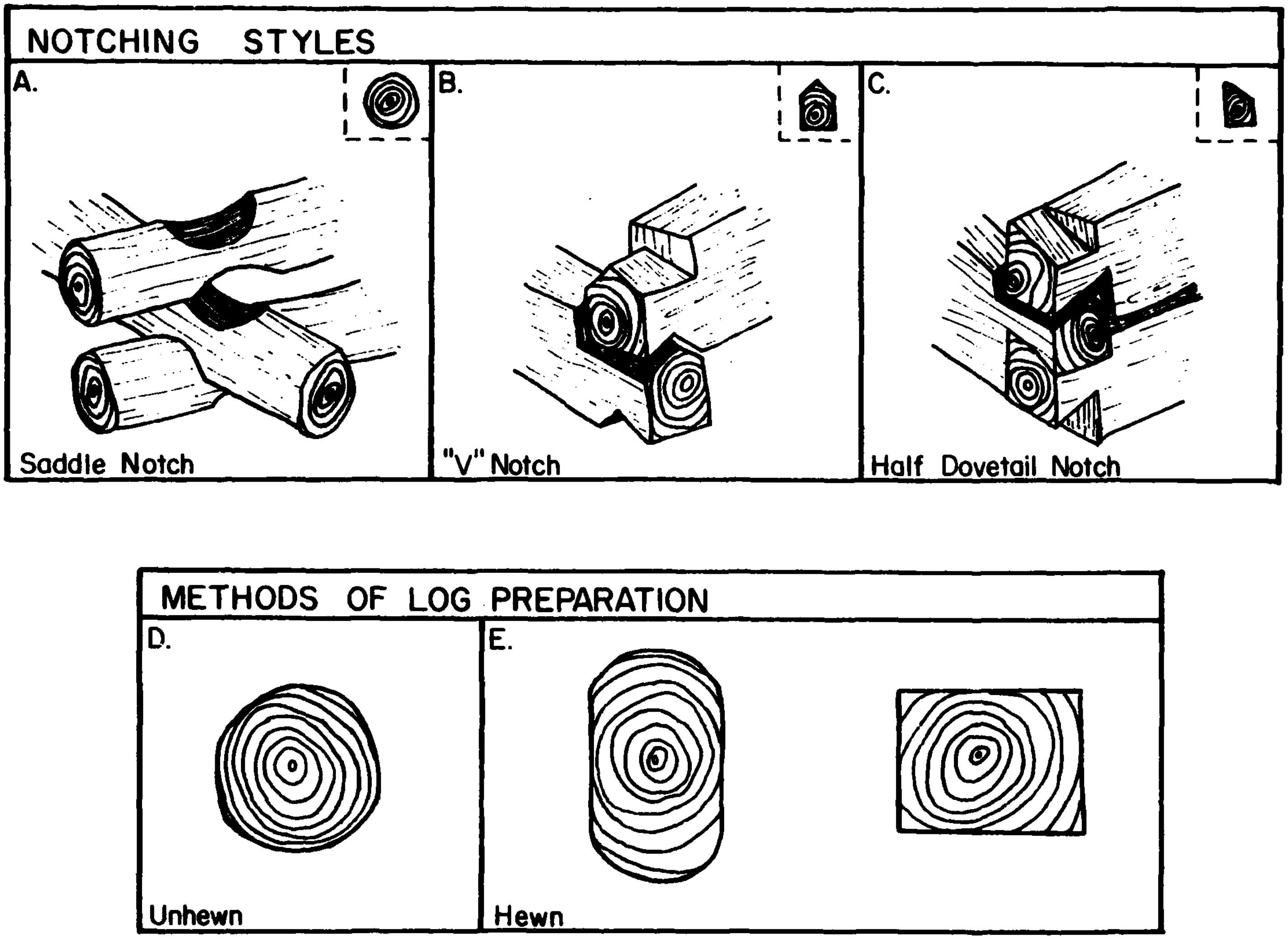


Figure 4.3. Notching styles and methods of log preparation.

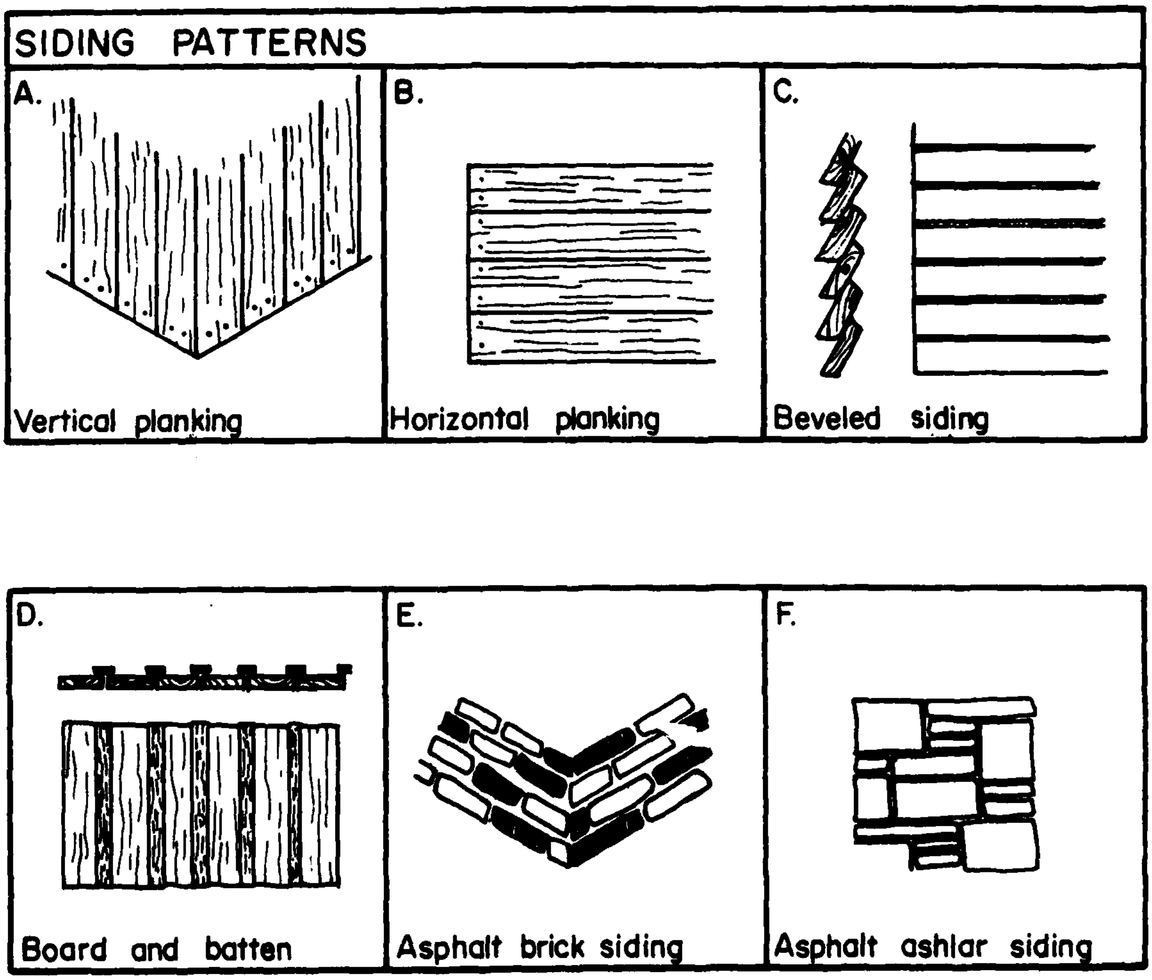


Figure 4.4. Siding patterns.

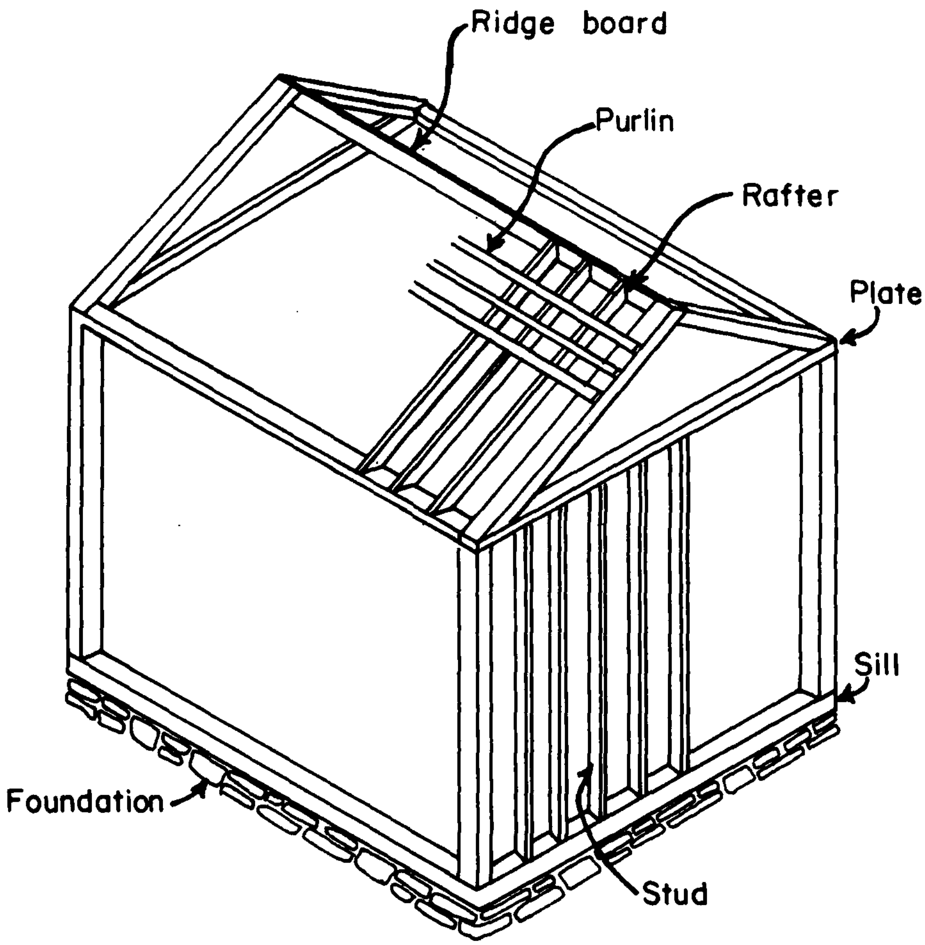


Figure 4.5. Framing members.

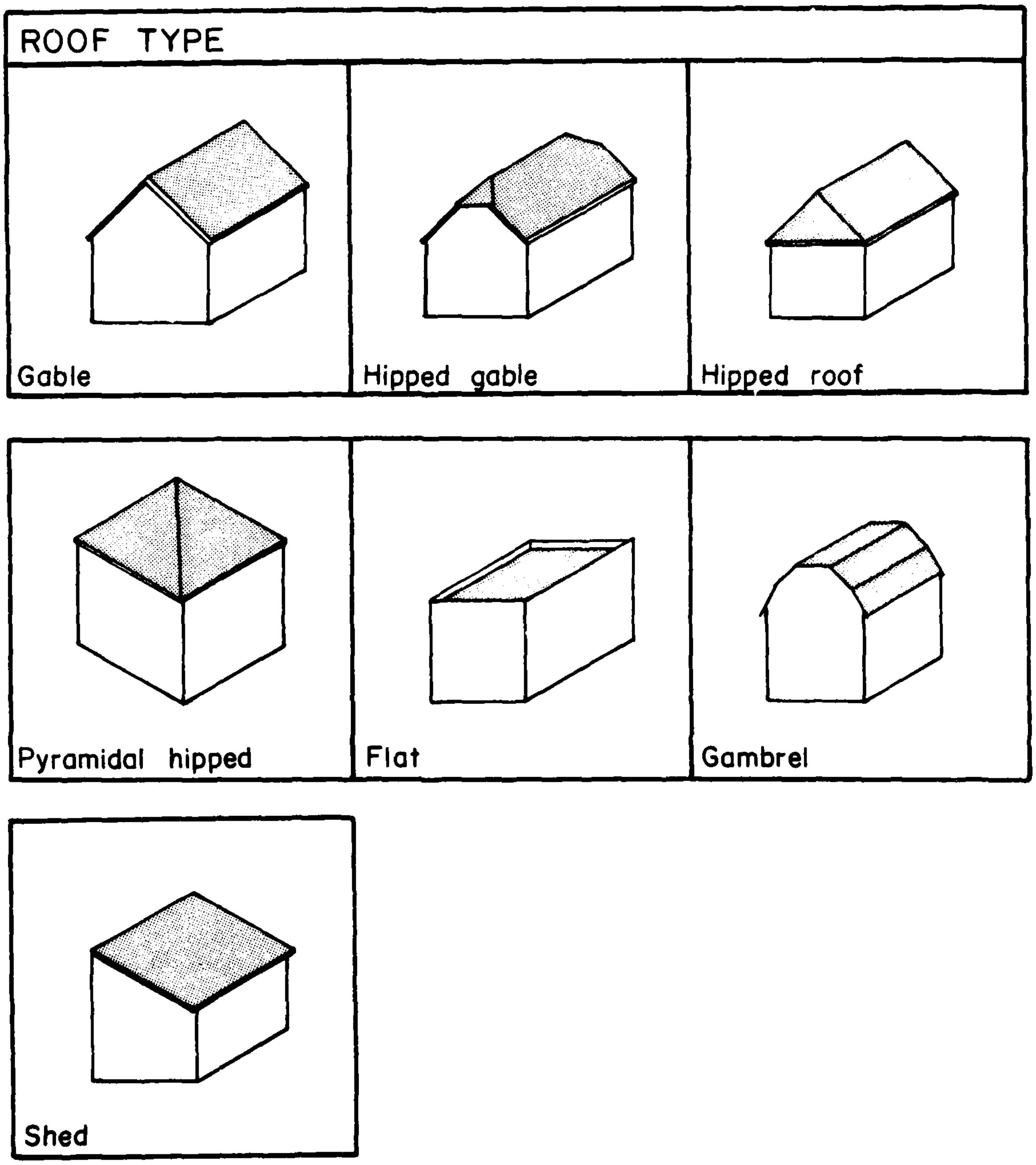
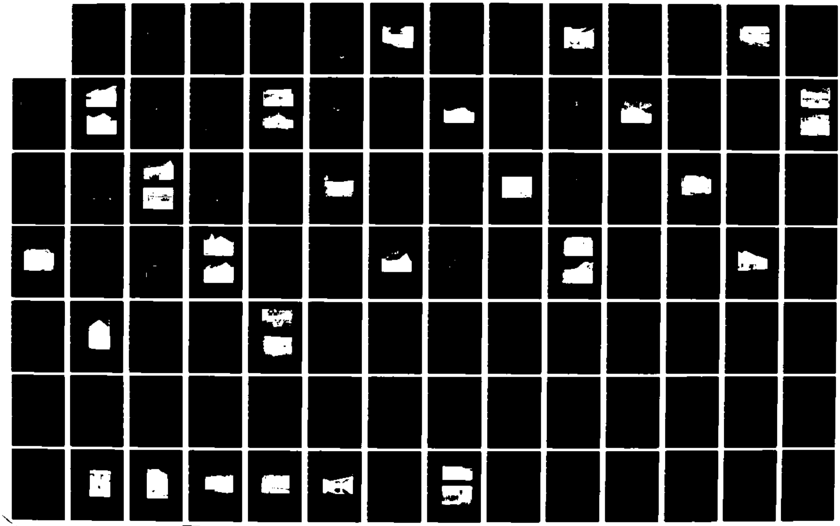
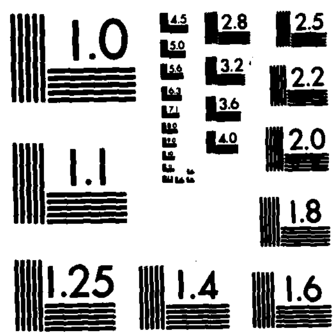


Figure 4.6. Roof types.

AD-A124 434 AN INVENTORY AND EVALUATION OF ARCHITECTURAL AND ENGINEERING RESOURCES OF..(U) ENVIRONMENT CONSULTANTS INC LEXINGTON KY S K HUTCHINSON ET AL. 25 FEB 82 2/3

UNCLASSIFIED CRR-82-4 DACW62-81-C-0013 F/G 5/1 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

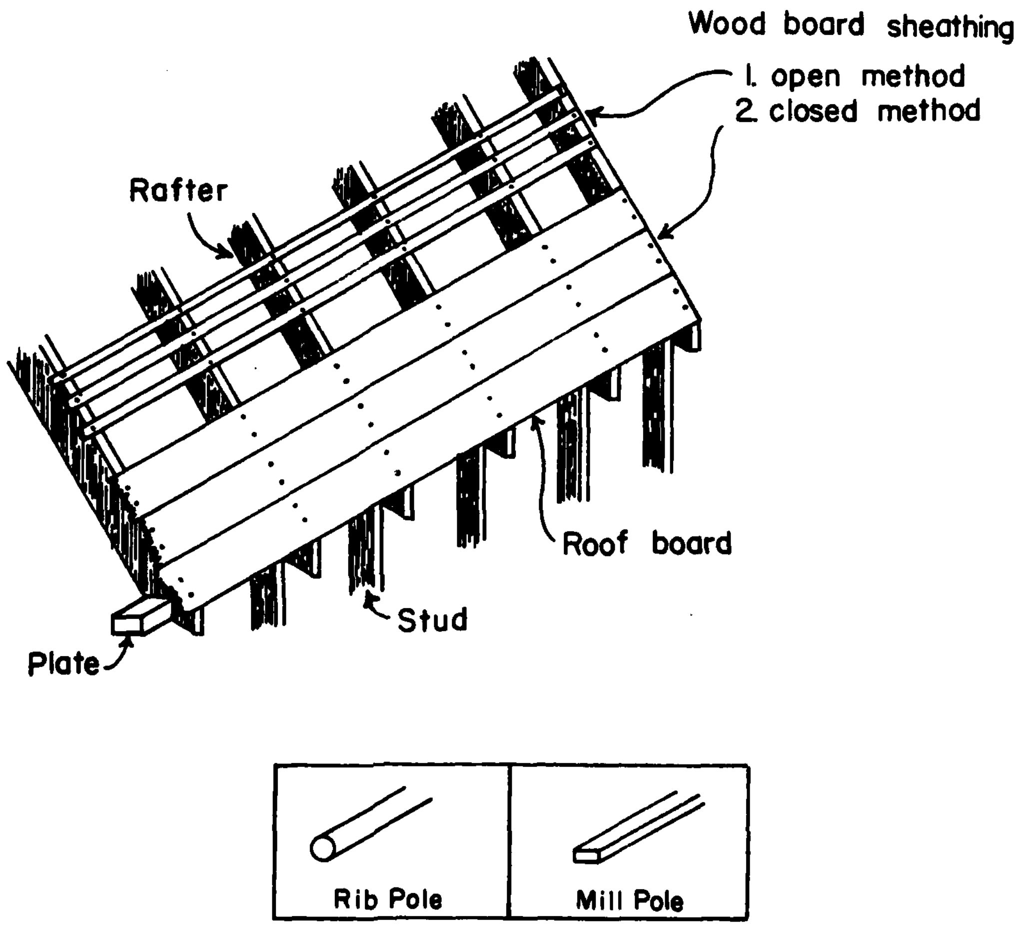


Figure 4.7. Roof construction techniques and roof framing members.

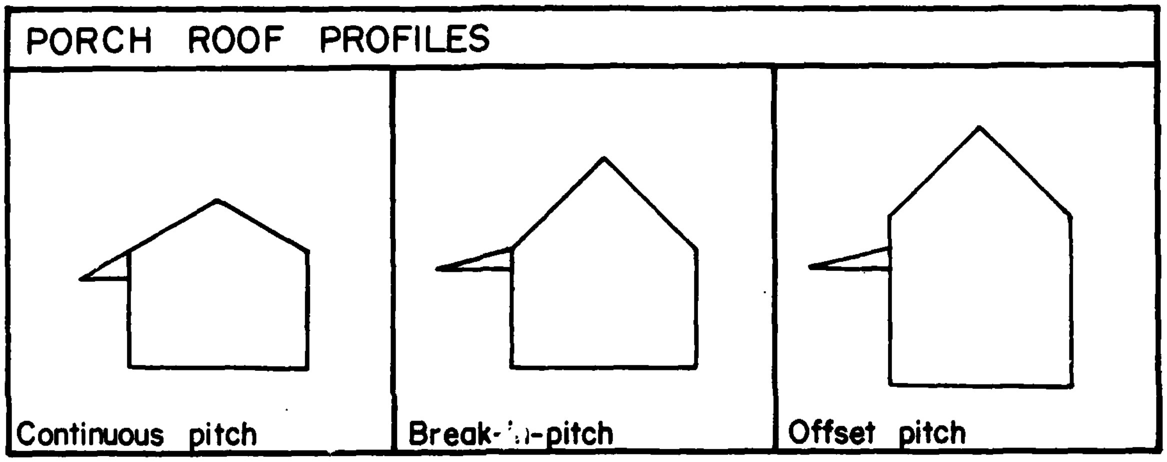


Figure 4.8. Porch roof profiles.

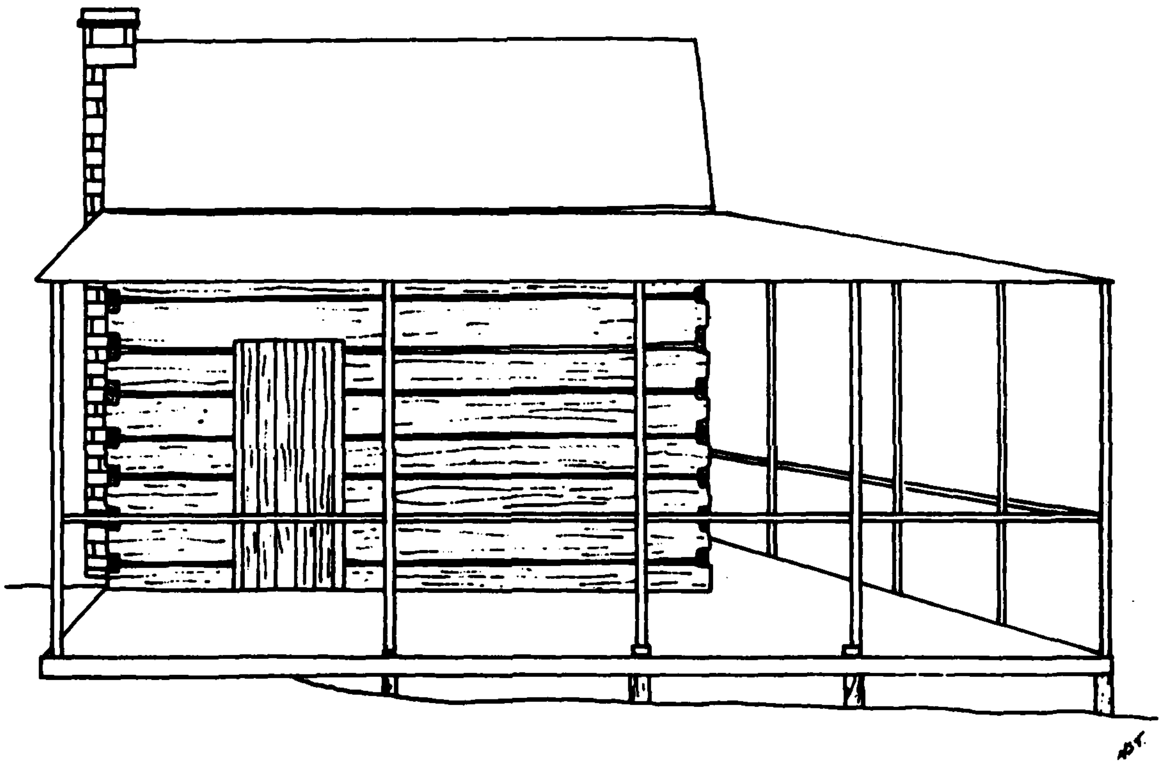


Figure 4.9 Site BS26 Elevation.

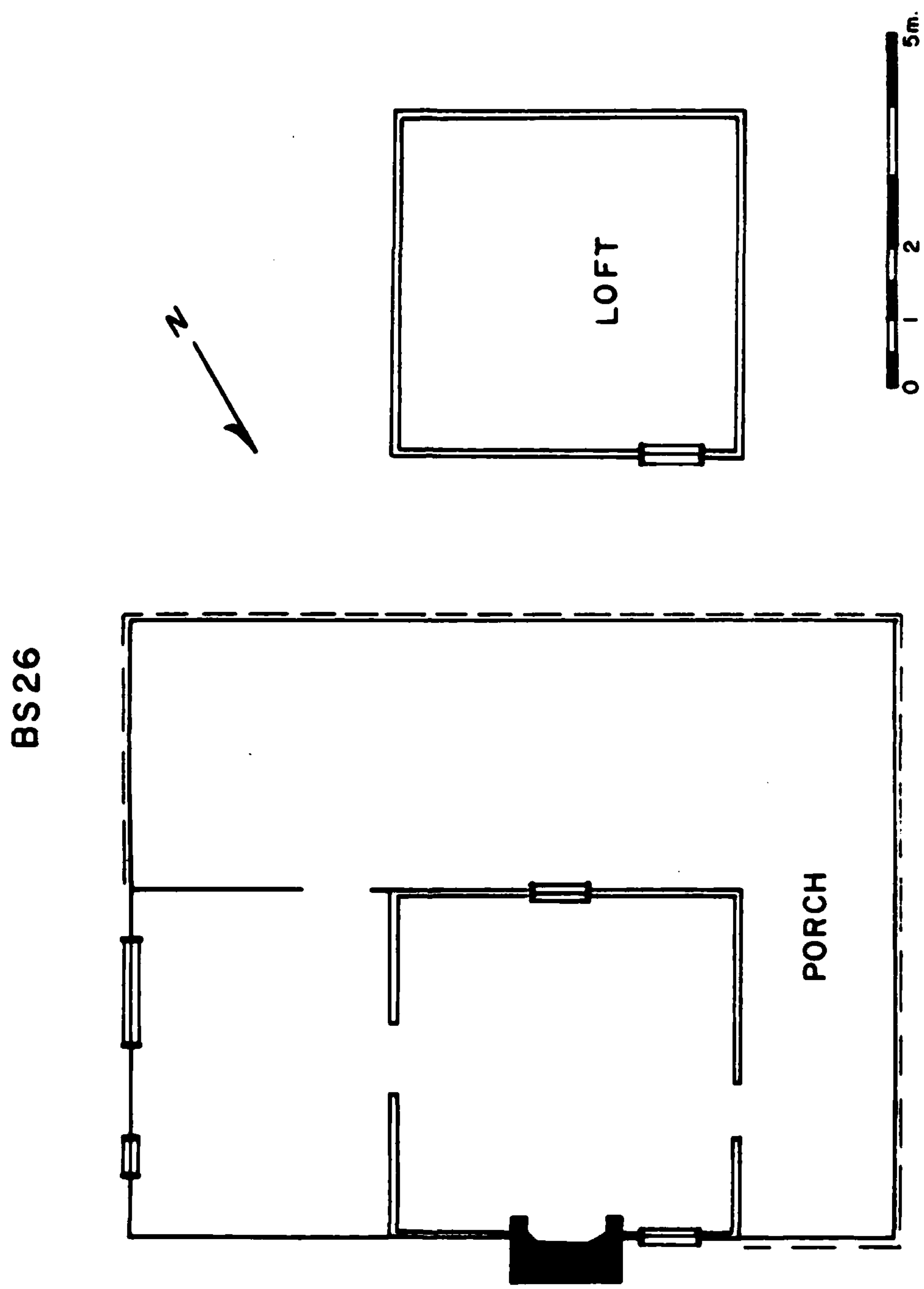


Figure 4.10 Site BS26 Plan.

Fig. 4.11 (BS26) Front and side view showing sandstone chimney.

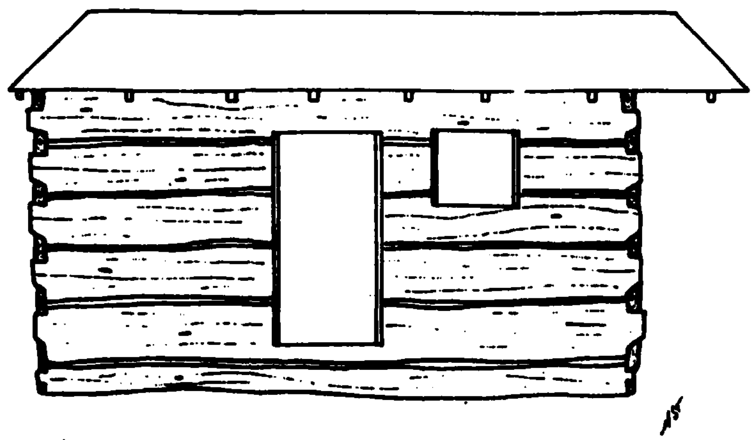


Figure 4.12 Site BS50A Elevation.

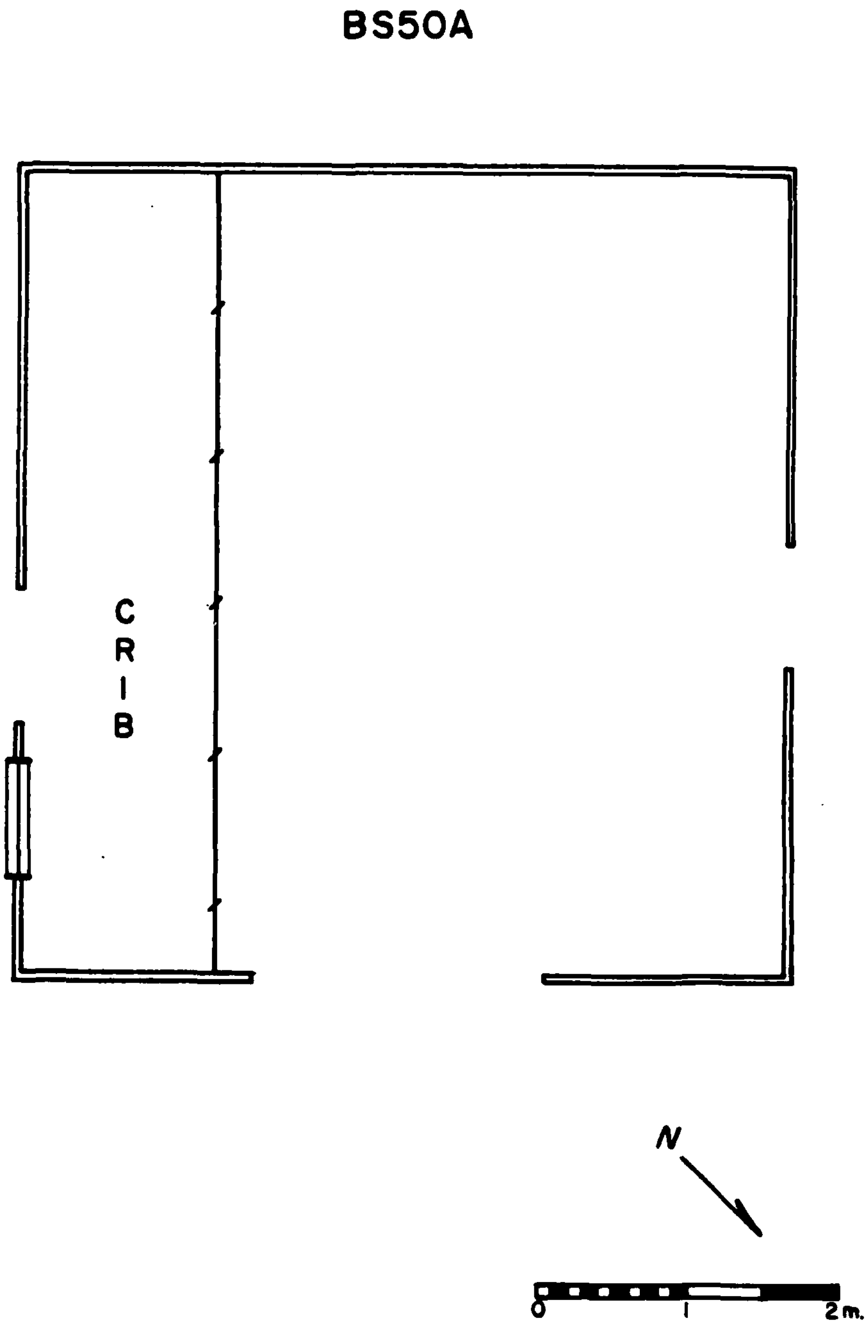


Figure 4.13 Site BS50A Plan.

Fig. 4.14 (BS50A) Front and side view. Log outbuilding, formerly kitchen for BS51.

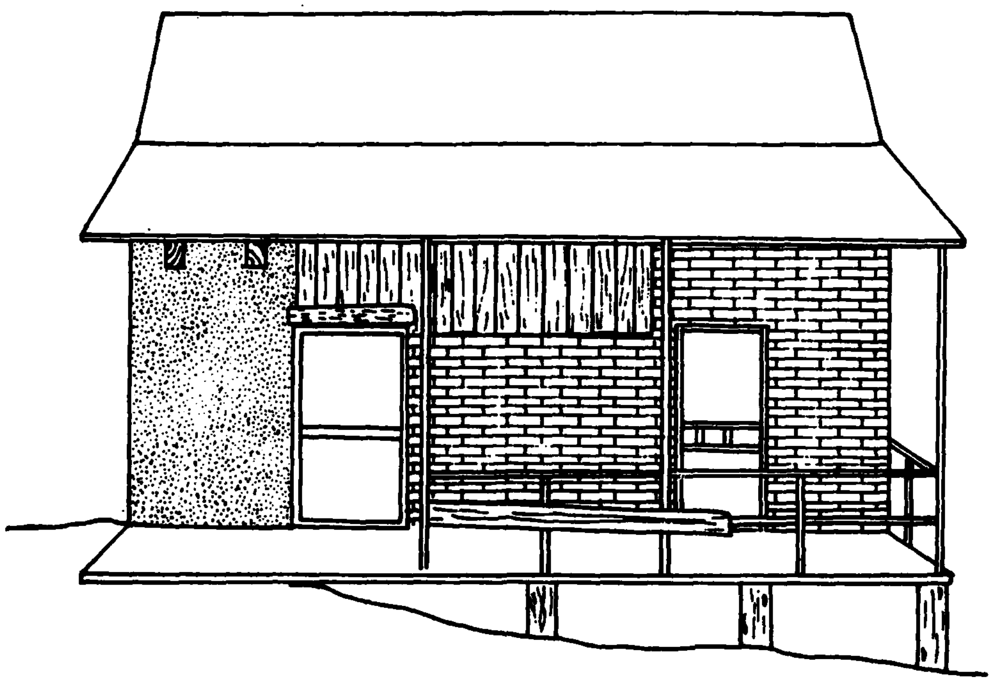


Figure 4.15 Site BS51 Elevation.

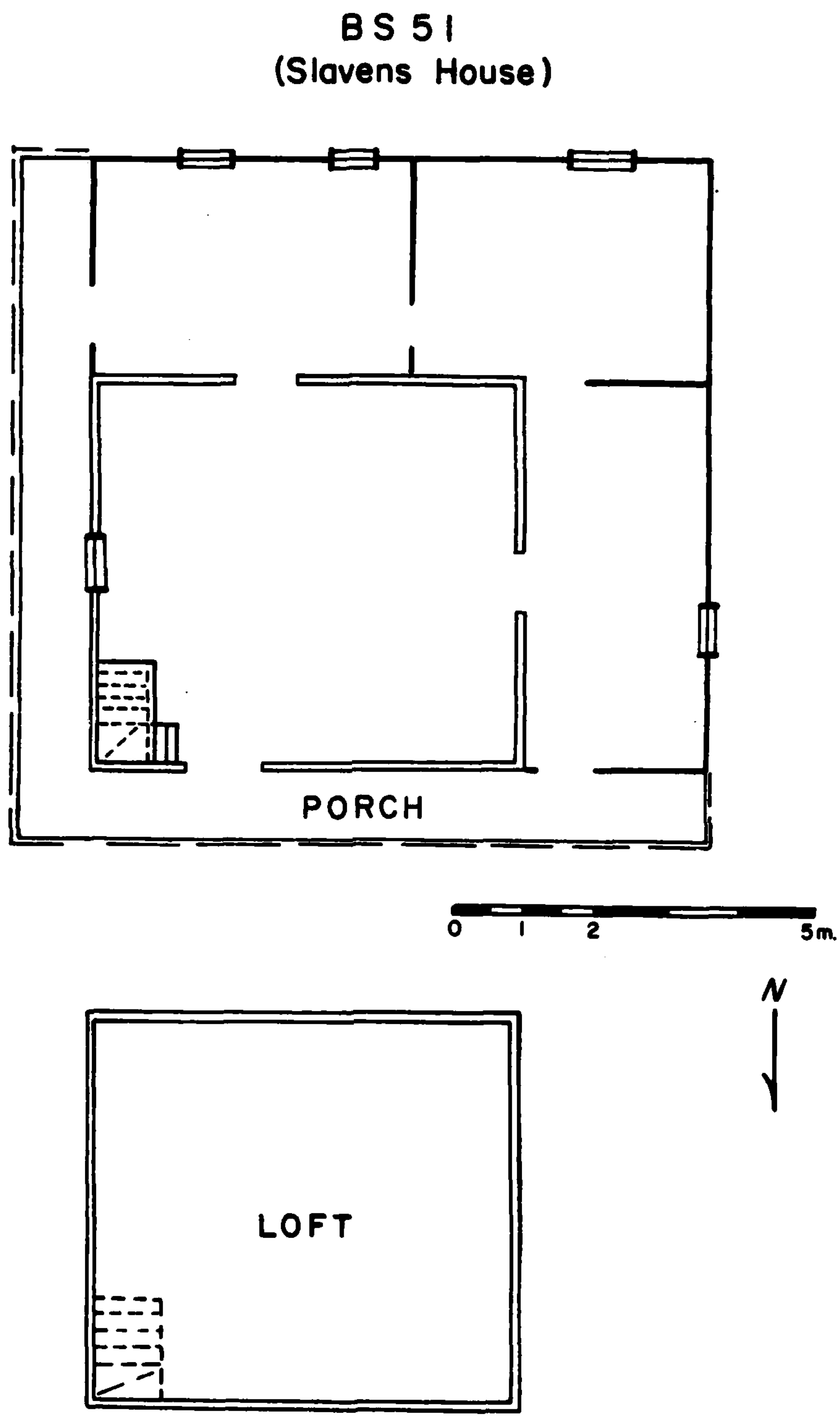


Figure 4.16 Site BS51 Plan.

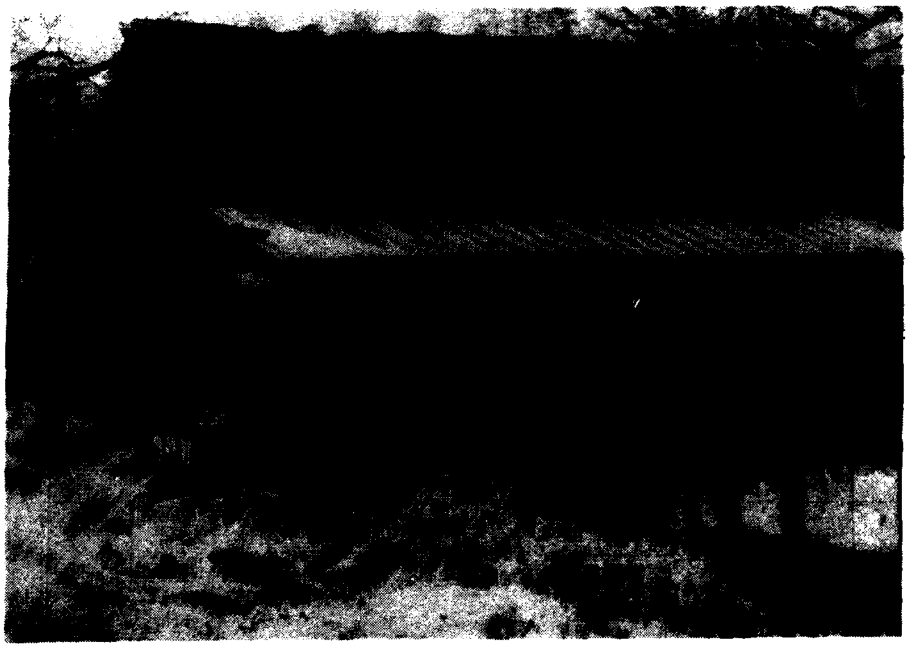


Fig. 4.17 (BS51) Front view of house. Log portion at left end.

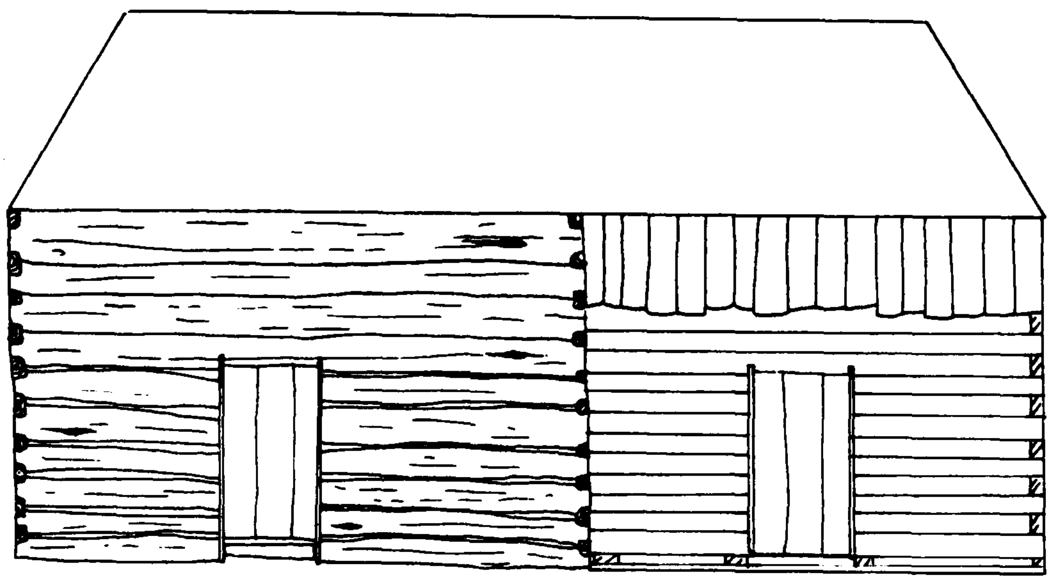


Figure 4.18 Site H002 Elevation.

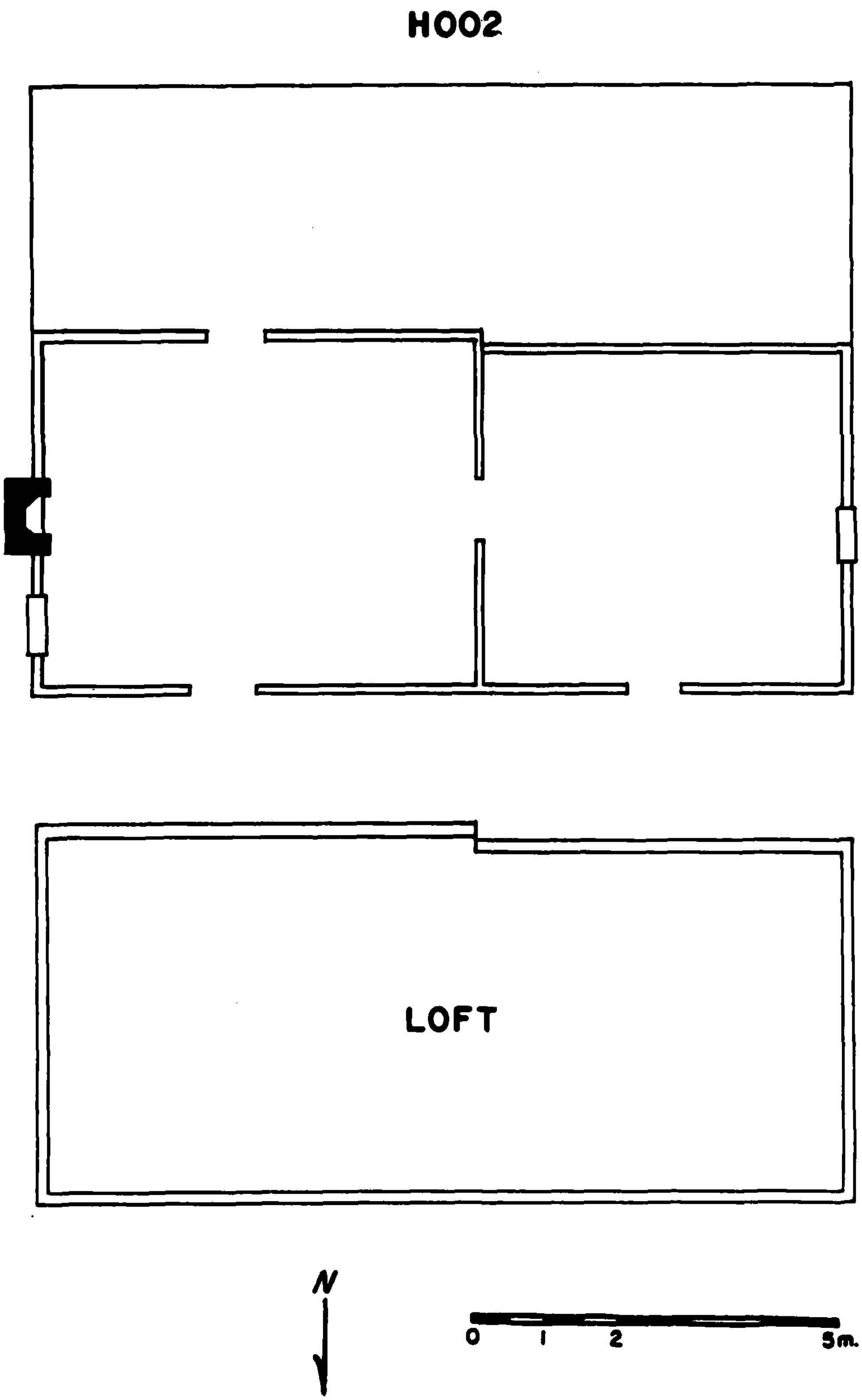


Figure 4.19 Site H002 Plan.

Fig. 4.20A (H002) Front and side view of double-pen log house.

Fig. 4.20B (H002) Side view of house showing stone chimney and plank addition on back.

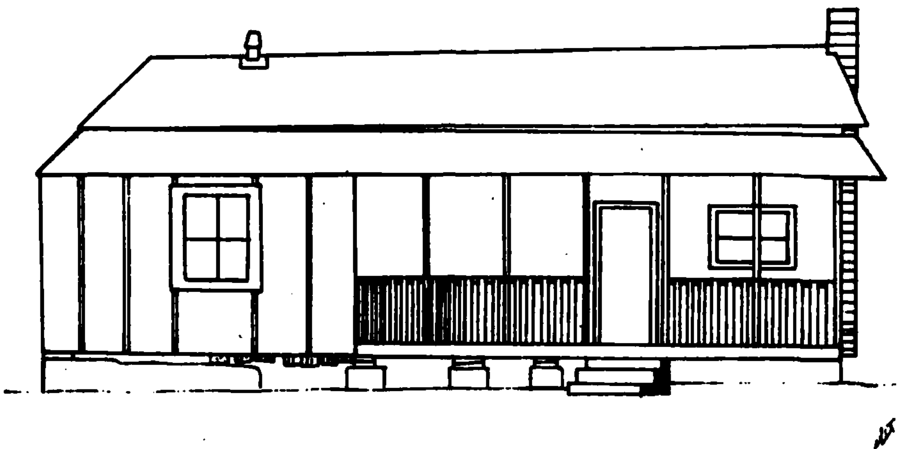


Figure 4.21 Site HOO8 Elevation.

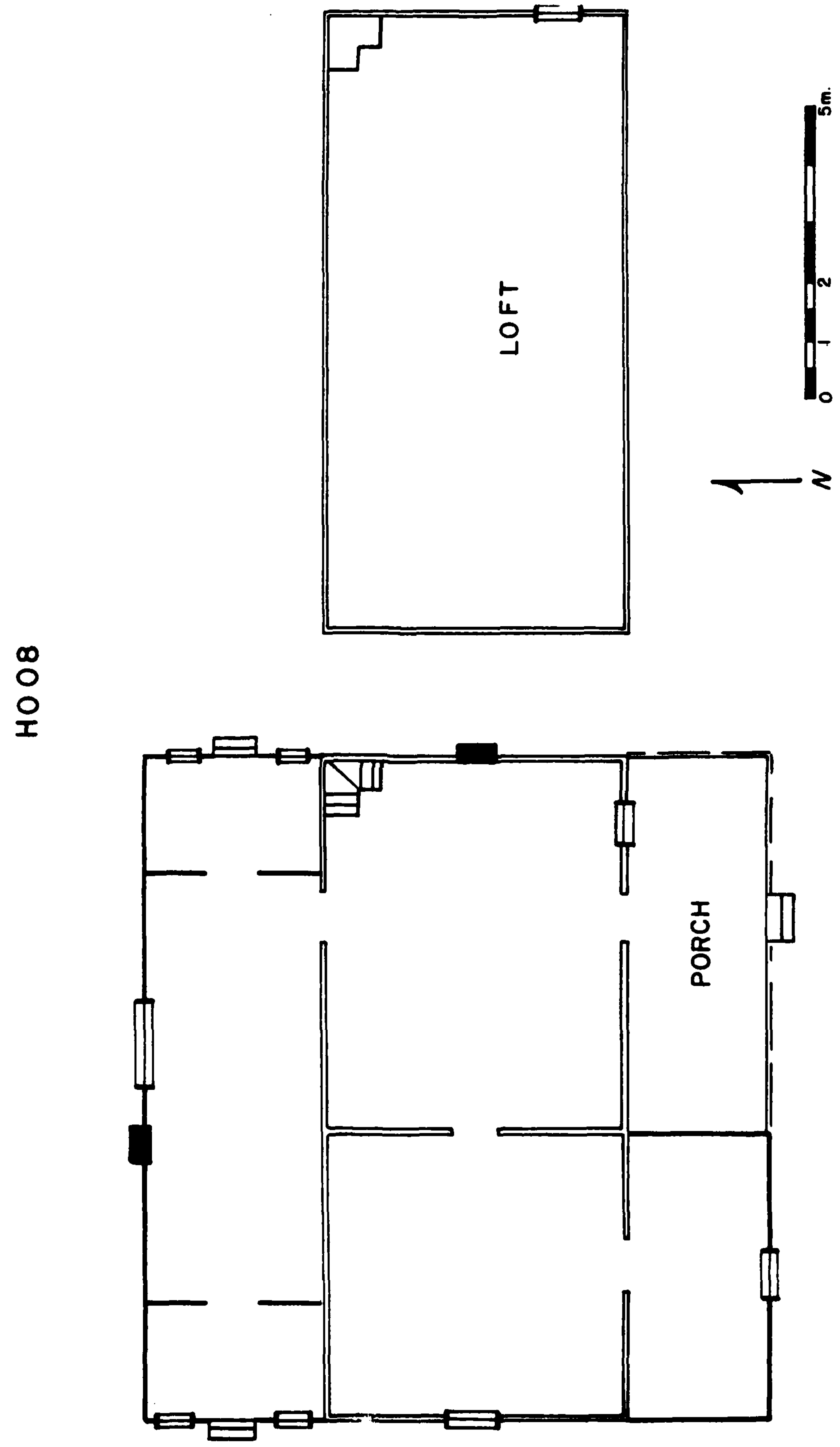


Figure 4.22 Site H008 Plan.

Fig. 4.23A (H008) Front view of log house. Room on left side is plank addition.

Fig. 4.23B (H008) Side view showing original log house and additions in back. New concrete block chimney. Note vertical planks nailed over logs.

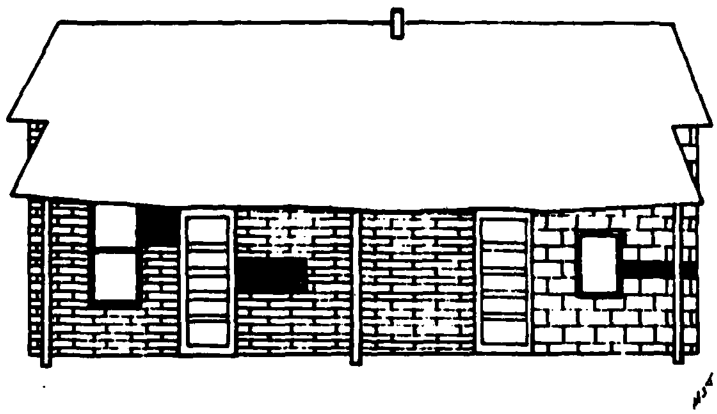


Figure 4.24 Site B104 Elevation.

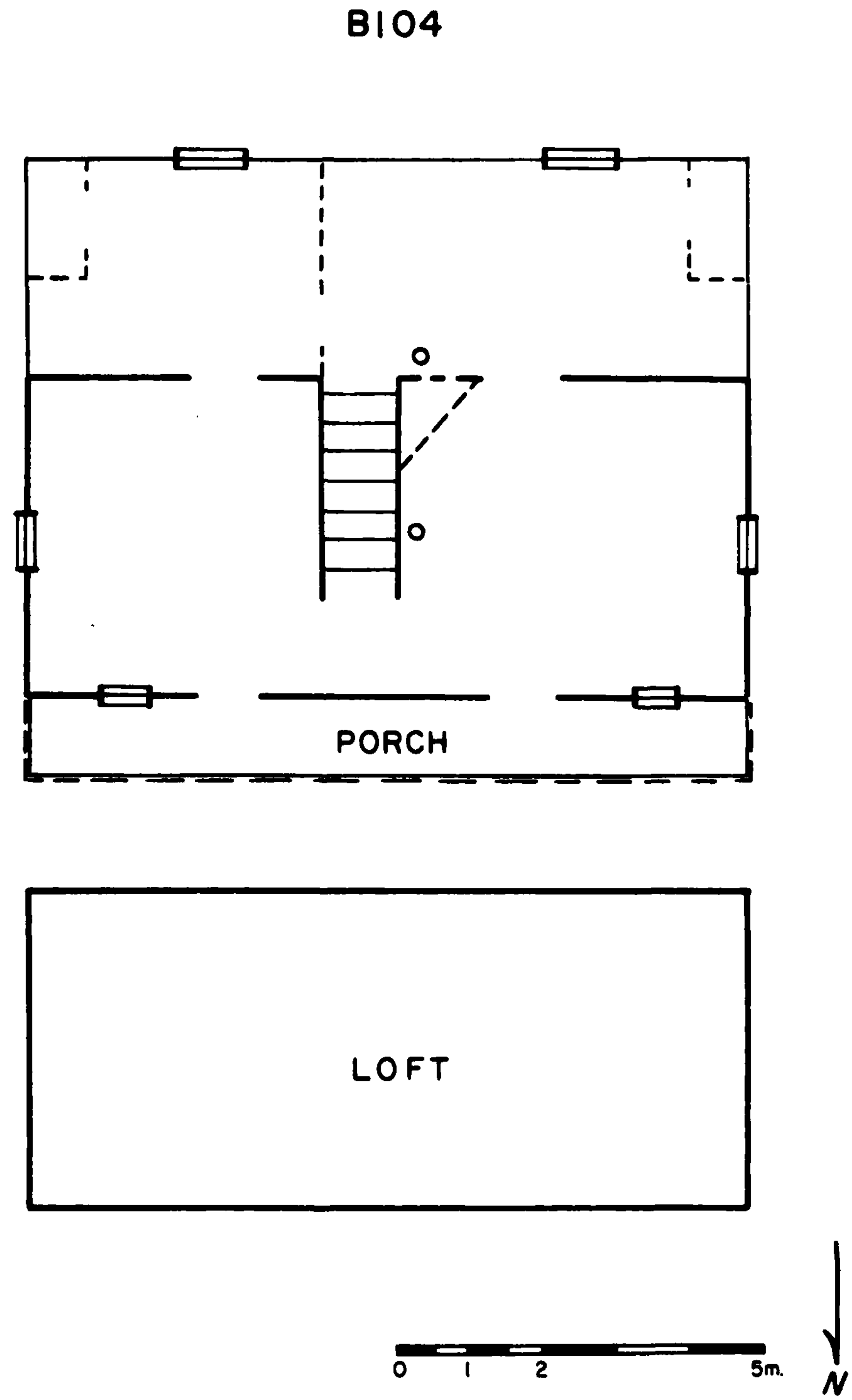


Figure 4.25 Site B104 Plan.

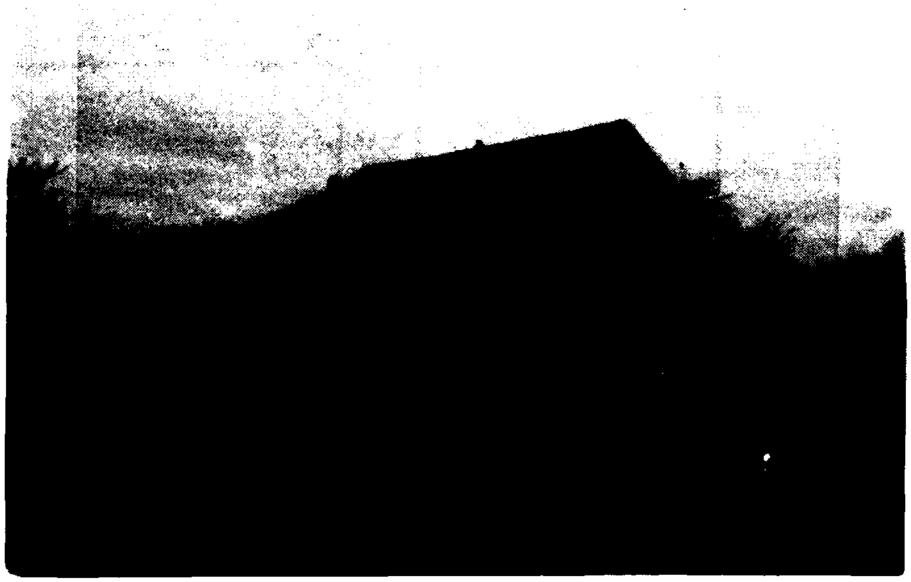


Fig. 4.26 (B104) 3/4 view of house showing the southern and eastern walls. The rear addition (1951) is shown too.

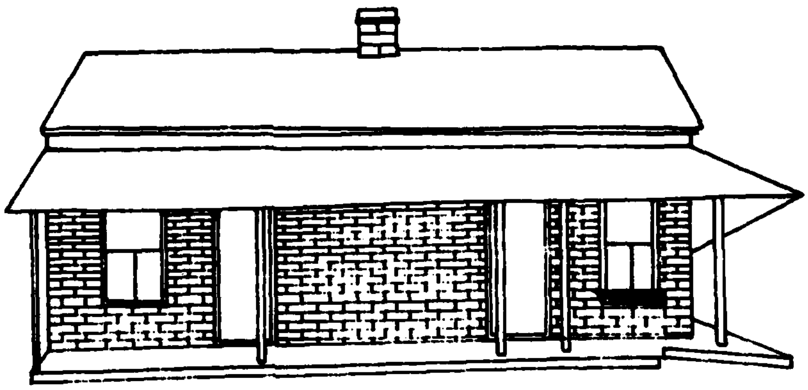


Figure 4.27 Site B105 Elevation.

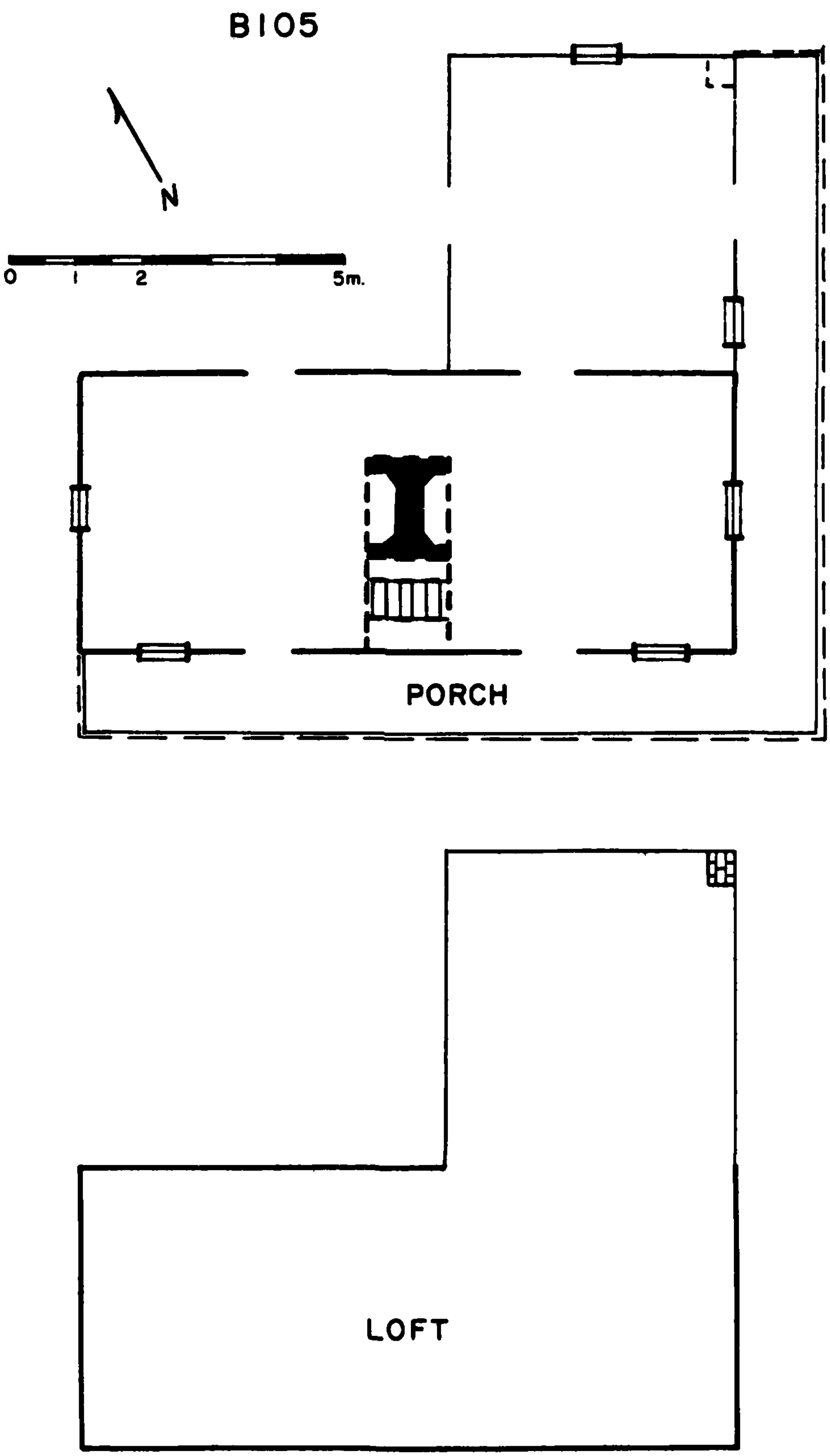


Figure 428 Site B105 Plan.

Fig. 4.29 (B105) 3/4 view showing west and south walls. The rolled brick siding, front porch and central stone chimney are also shown.

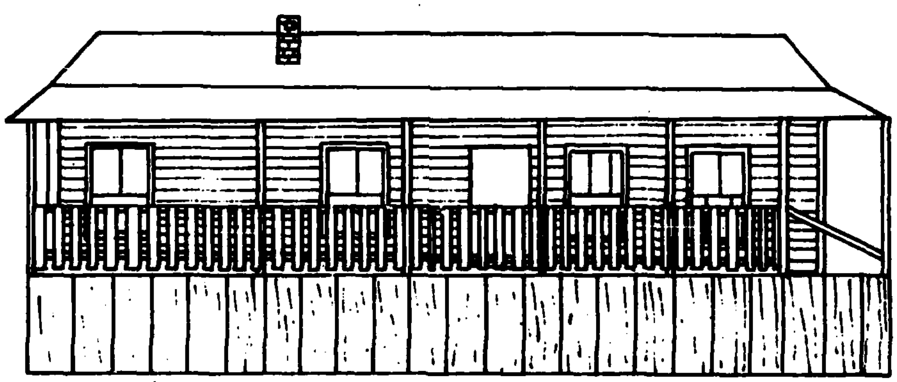


Figure 4.30 Site HO18 Elevation.

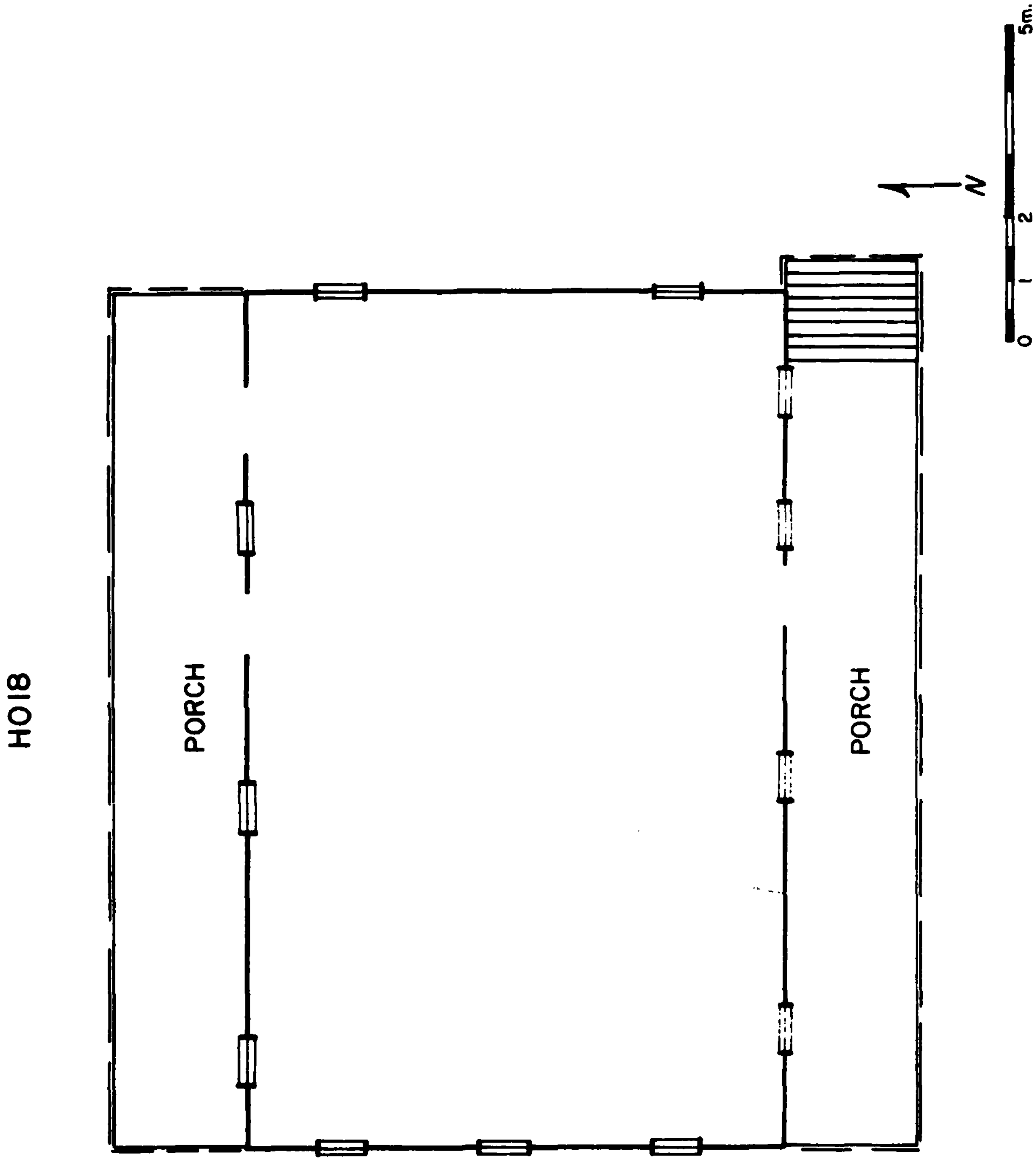


Figure 4.31 Site HO18 Plan.

Fig. 4.32A (H018) Front view of house and porch.

Fig. 4.32B (H018) Side view of house with front and back porches.

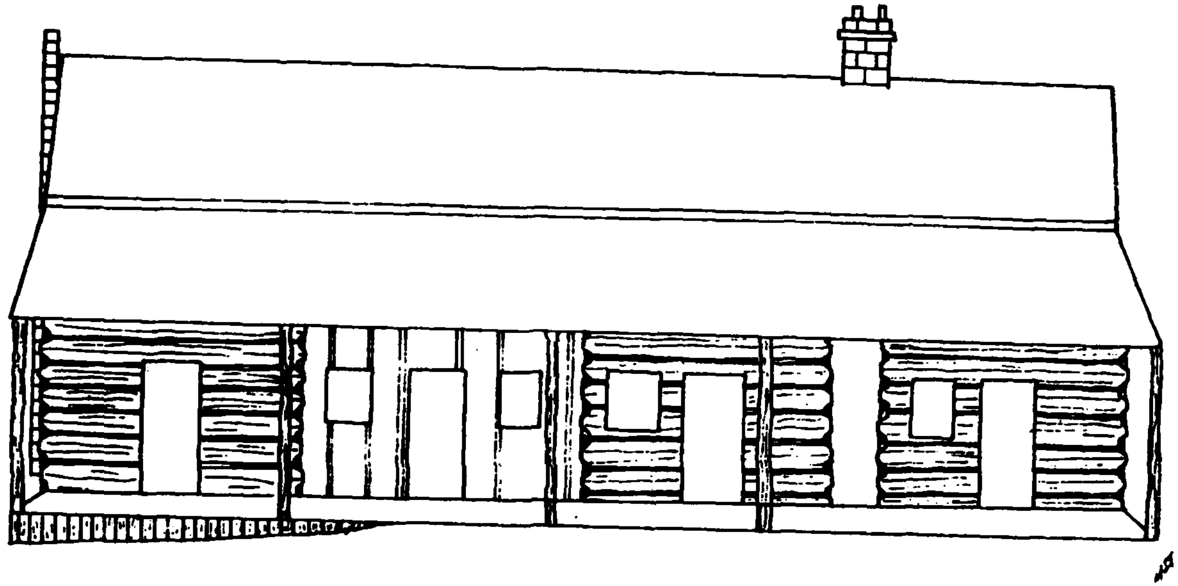


Figure 4.33 Site BS41 Elevation.

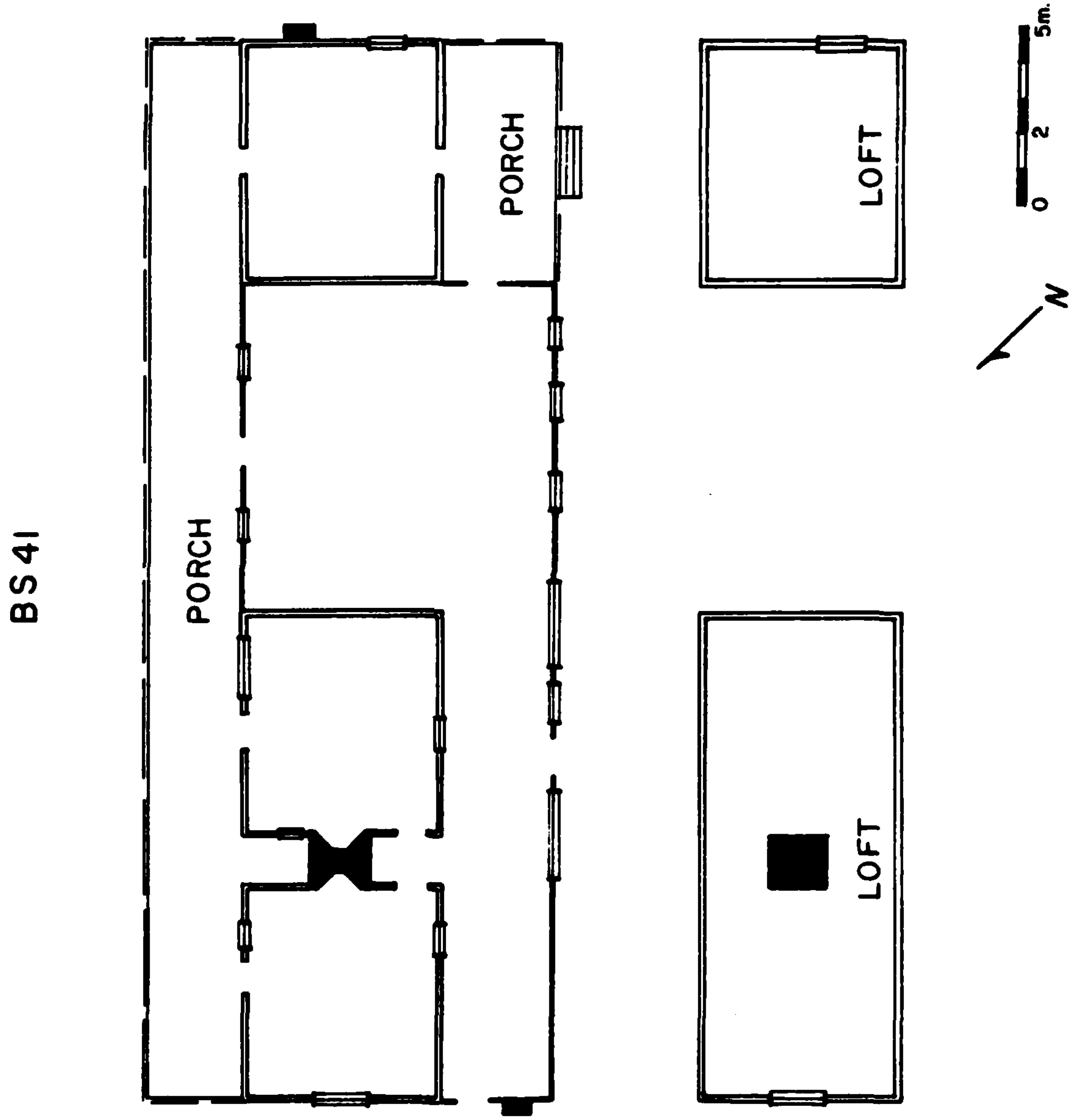


Figure 4.34 Site BS41 Plan.

Fig. 4.35A (BS41) Front corner showing porch and single-pen log house added on right side.

Fig. 4.35B (BS41) Front view. Saddlebag house on left side of photo.

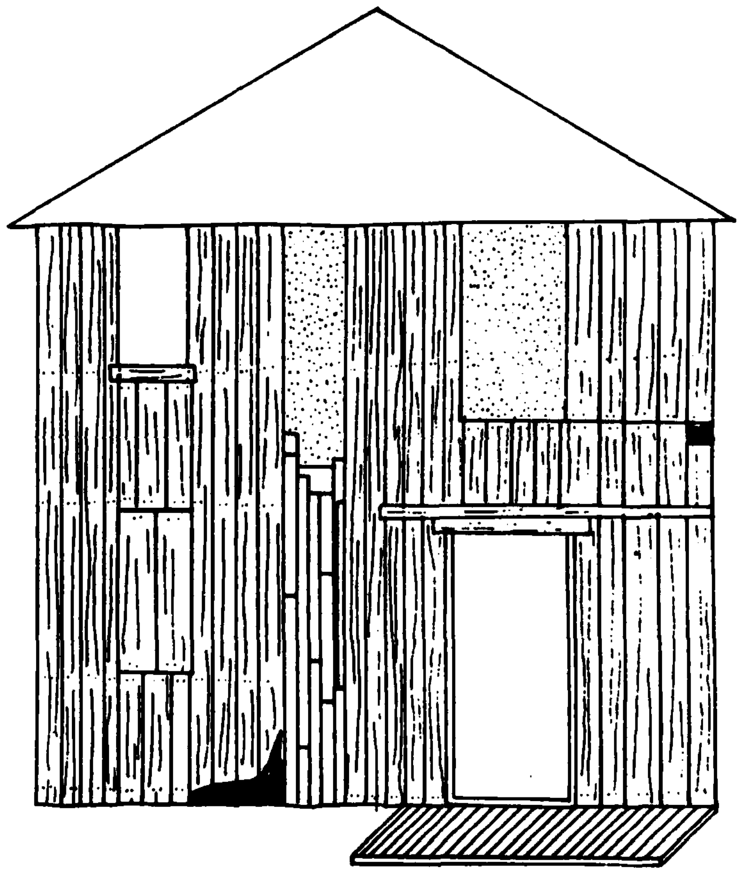


Figure 4.36 Site BS15 Elevation.

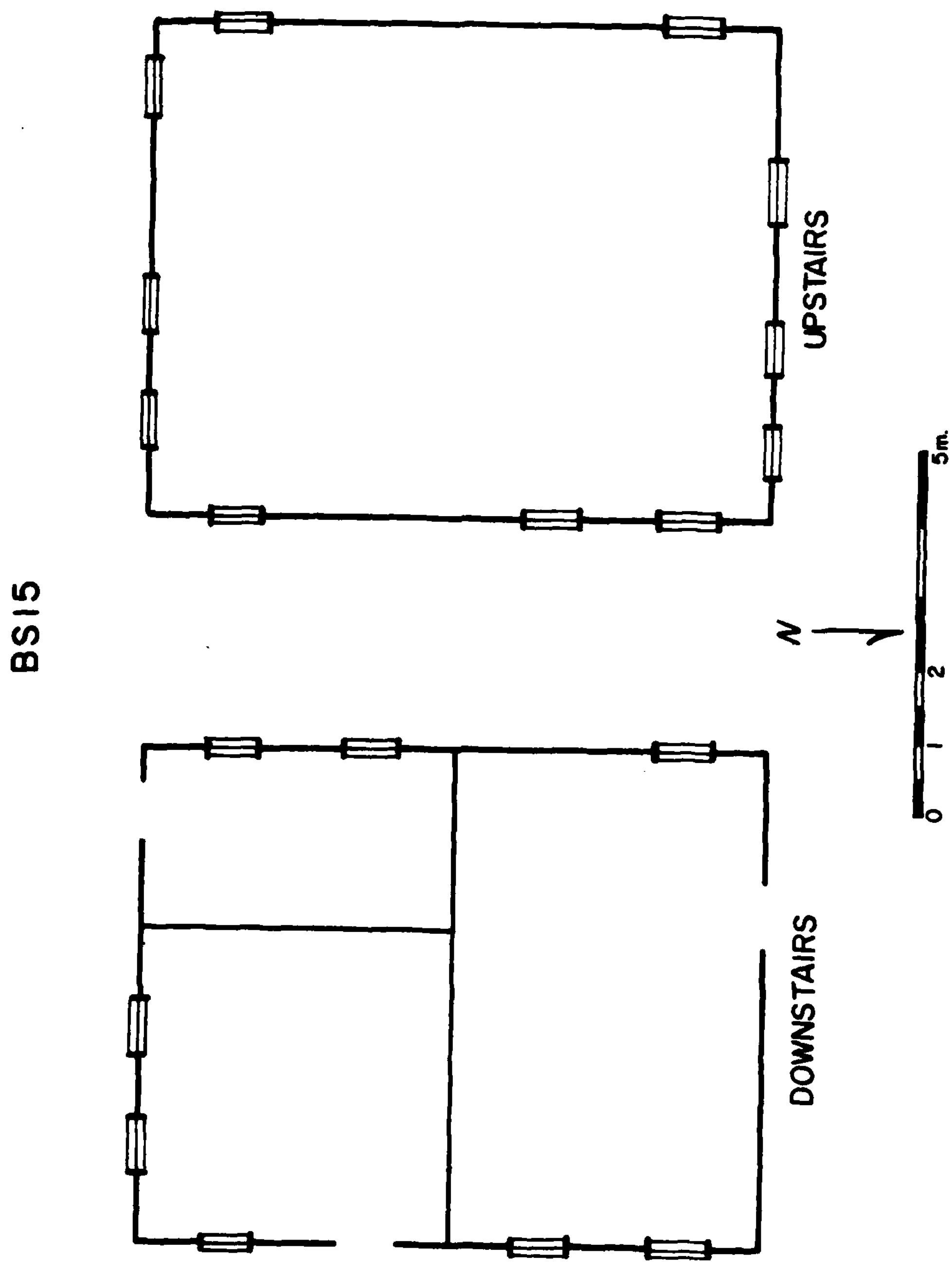


Figure 4.37 Site BS15 Plan.

Fig. 4.38 (BS15) Front and side view of two-story board and batten house.

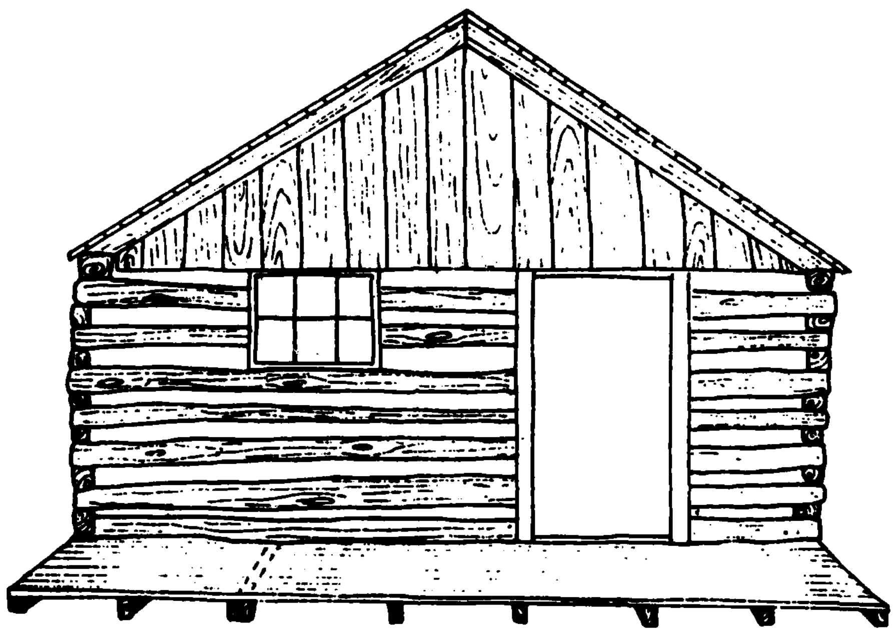


Figure 4.39 Site BS40E Elevation.

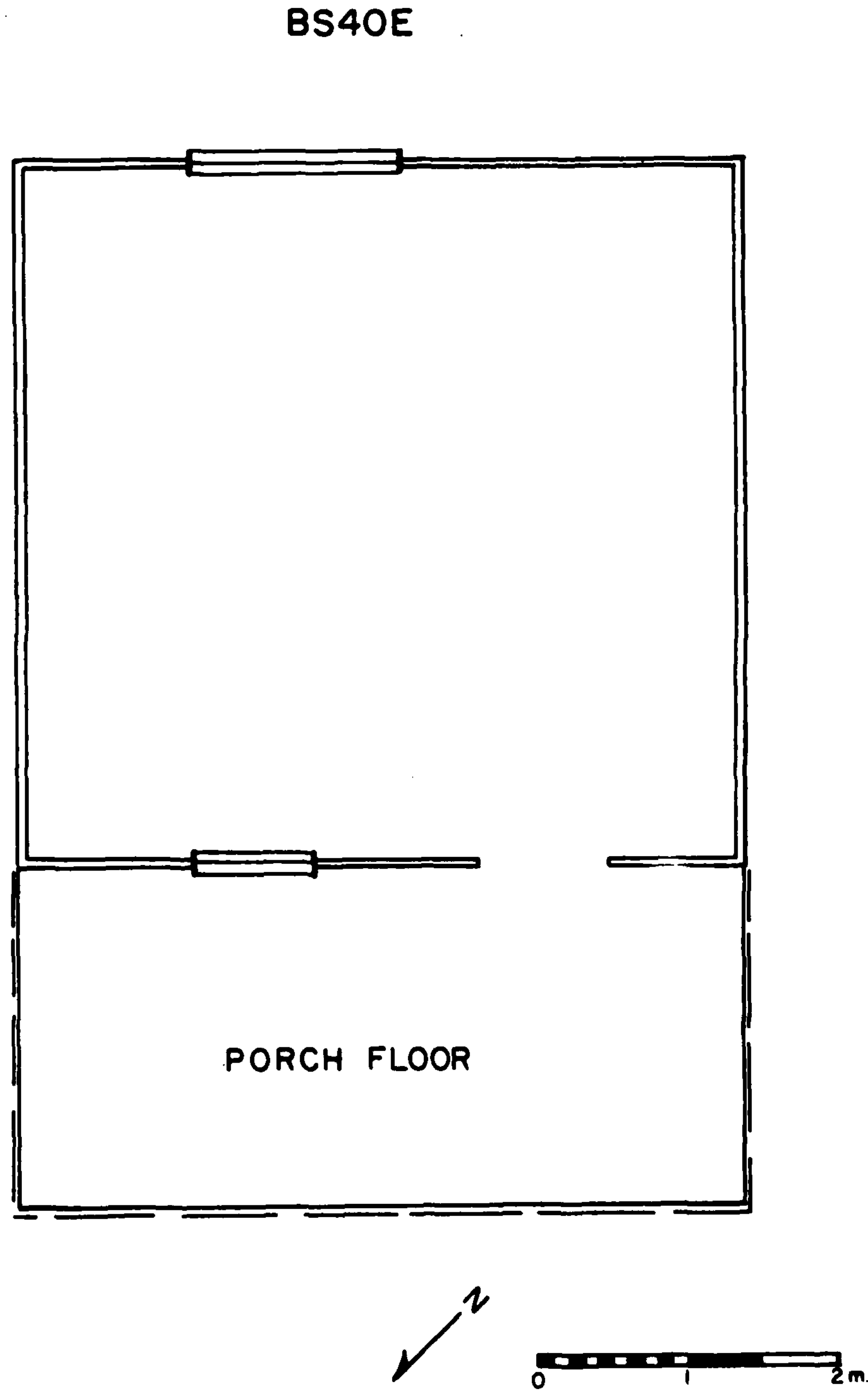


Figure 4.40 Site BS40E Plan.

Fig. 4.41 (BS40E) Front and side view.

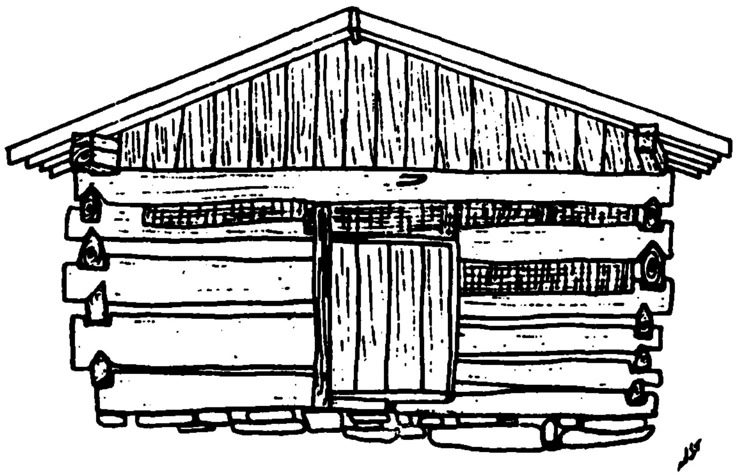


Figure 4.42 Site BS40 I Elevation.

BS40I

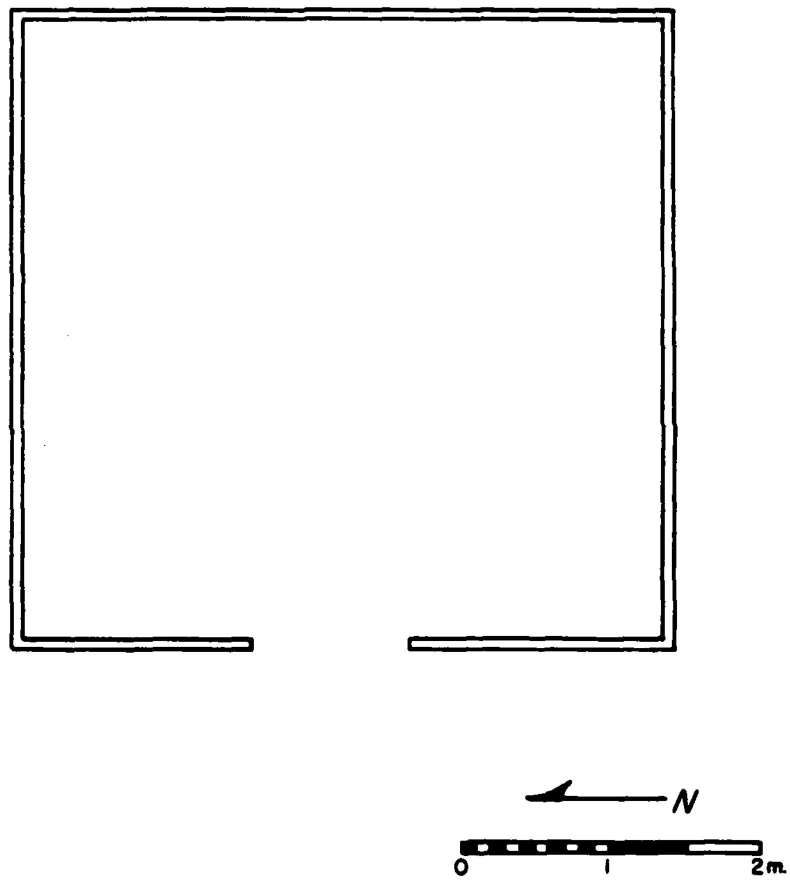


Figure 4.43 Site BS40I Plan.

Fig. 4.44 (BS40I) Front of "V" notched smithy.

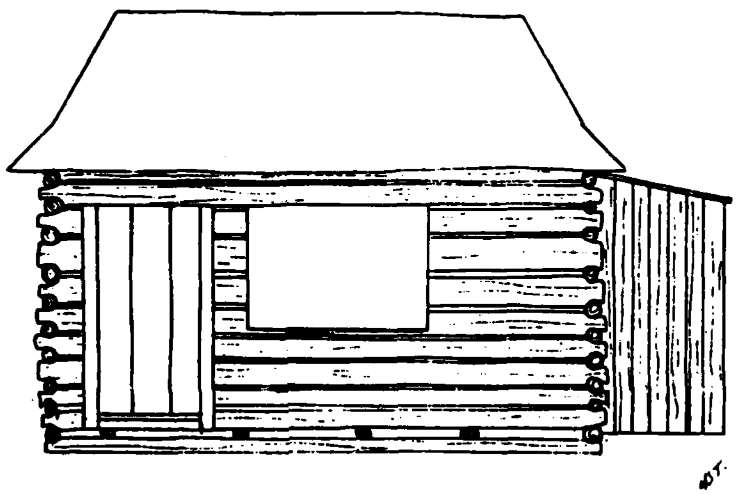


Figure 4.45 Site HOO7A Elevation.

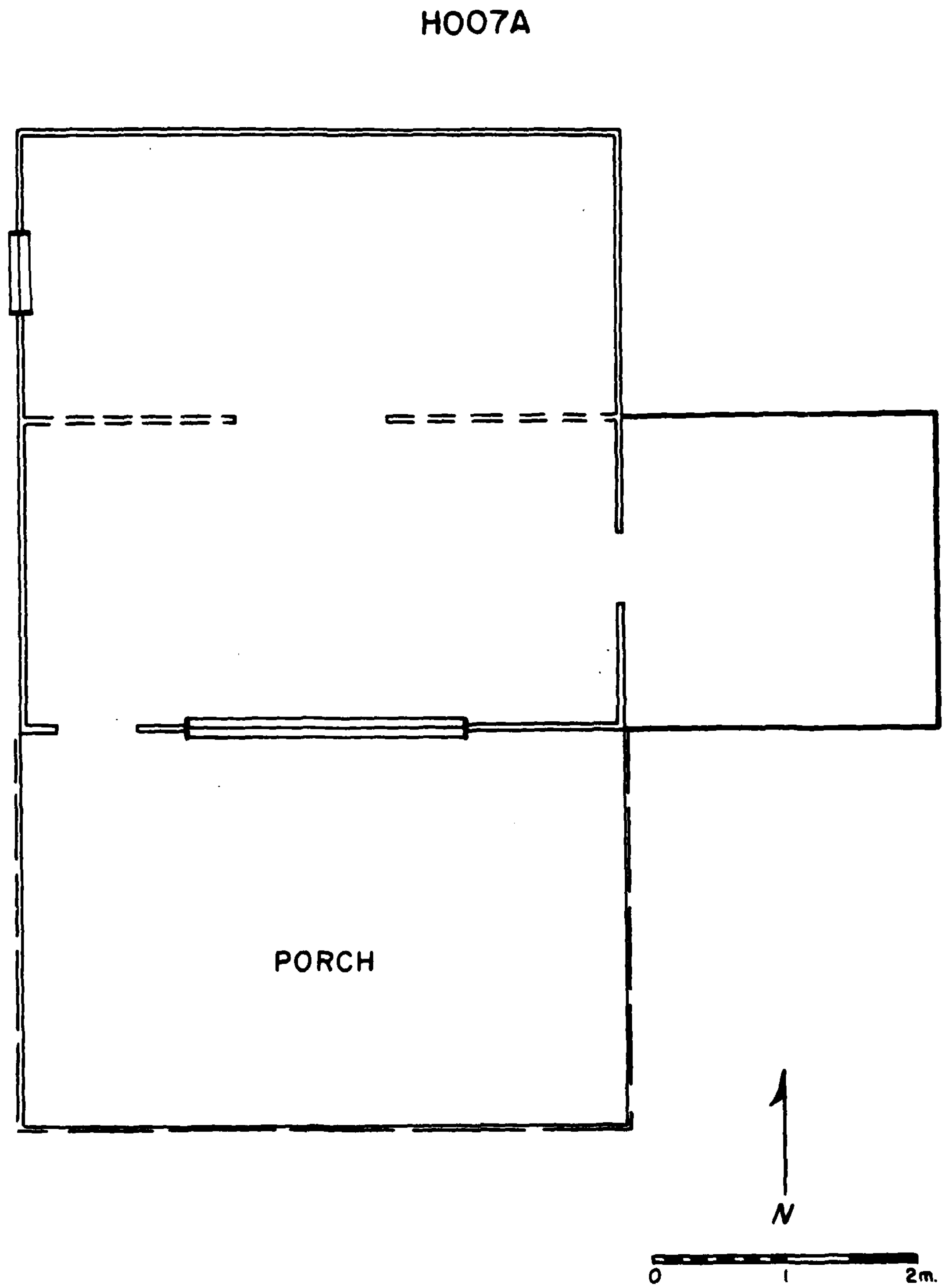


Figure 4.46 Site HOO7A Plan.

Fig. 4.47 (H007A) Side view of log corn crib.

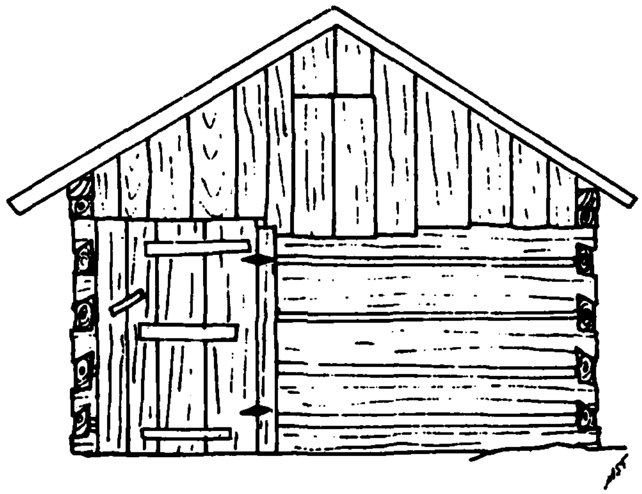


Figure 4.48 Site ON06B Elevation.

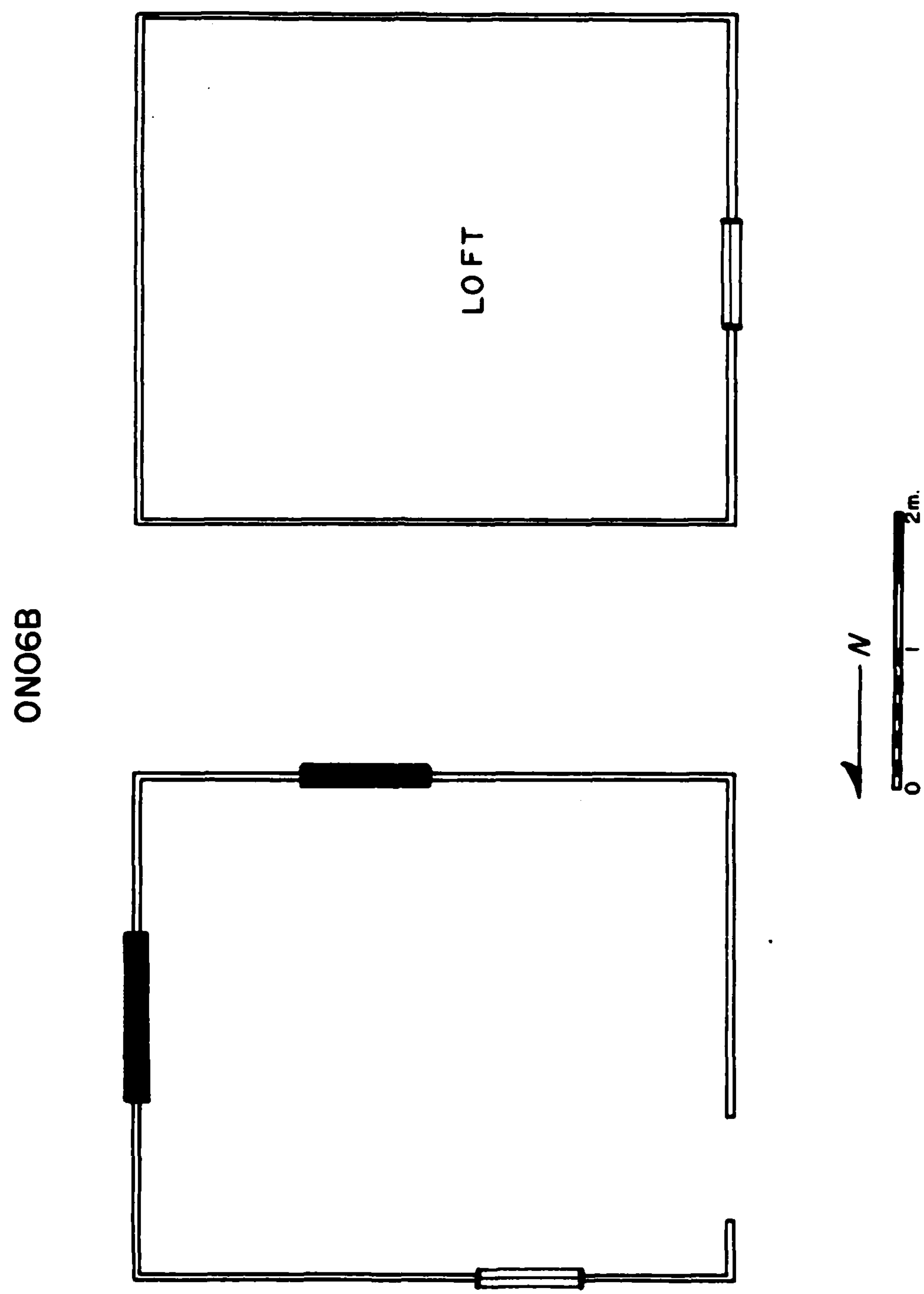


Figure 4.49 Site ONO6B Plan.

Fig. 4.50A (ONO6B) Front view of smokehouse.

Fig. 4.50B (ONO6B) Back and side view showing removed and blocked-up door and chimney openings.

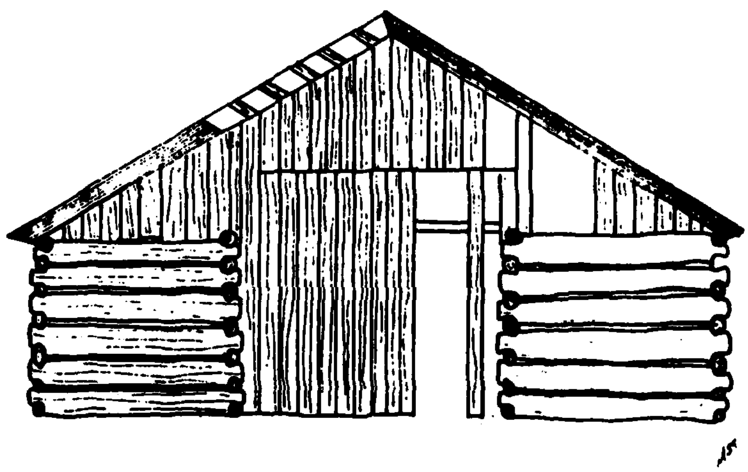


Figure 4.51 Site BO81 Elevation.

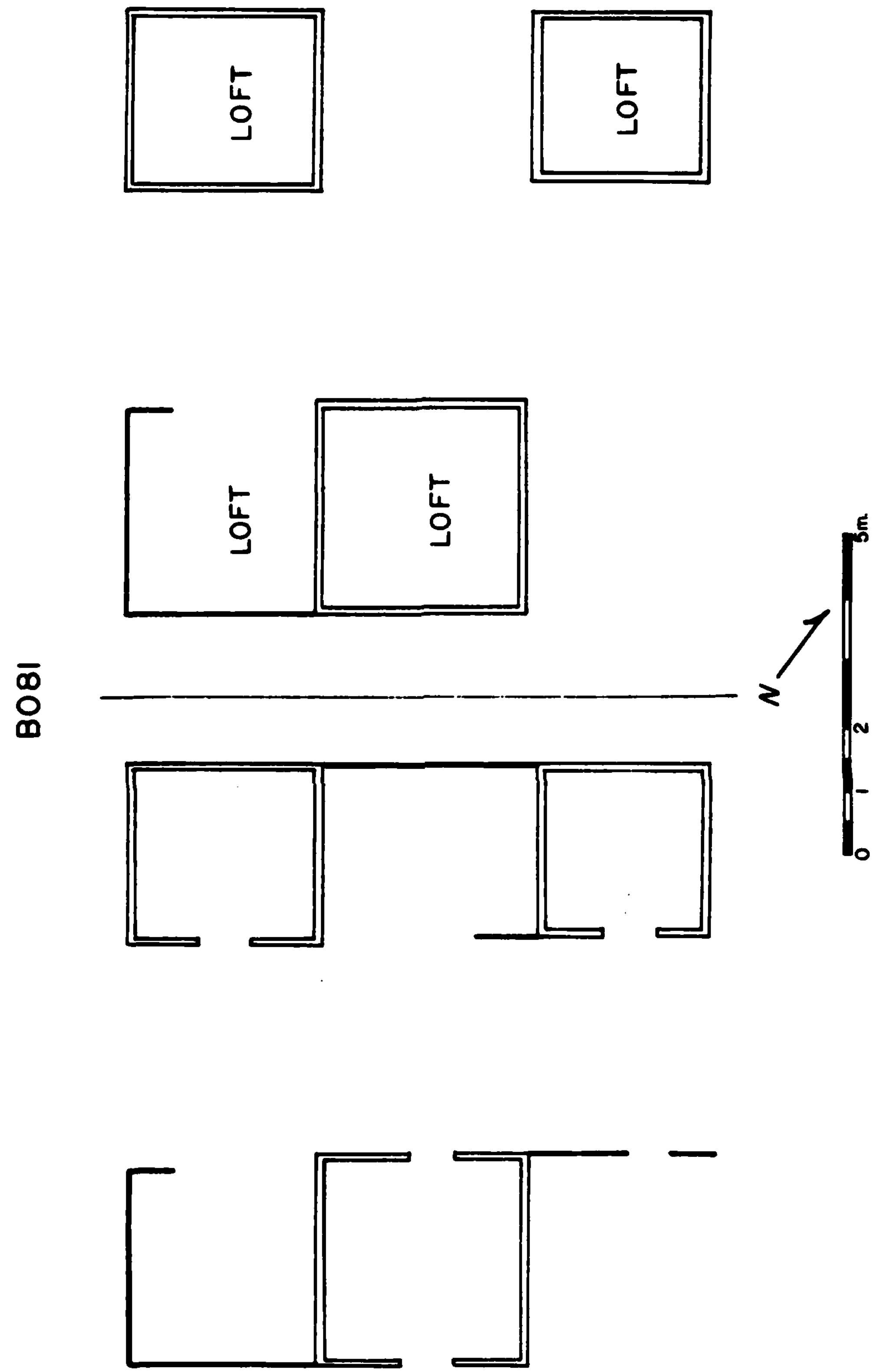


Figure 4.52 Site B081 Plan.

Fig. 4.53 (B081) 3/4 view showing south and west walls. The tin roof and cantilevered gable end are shown.

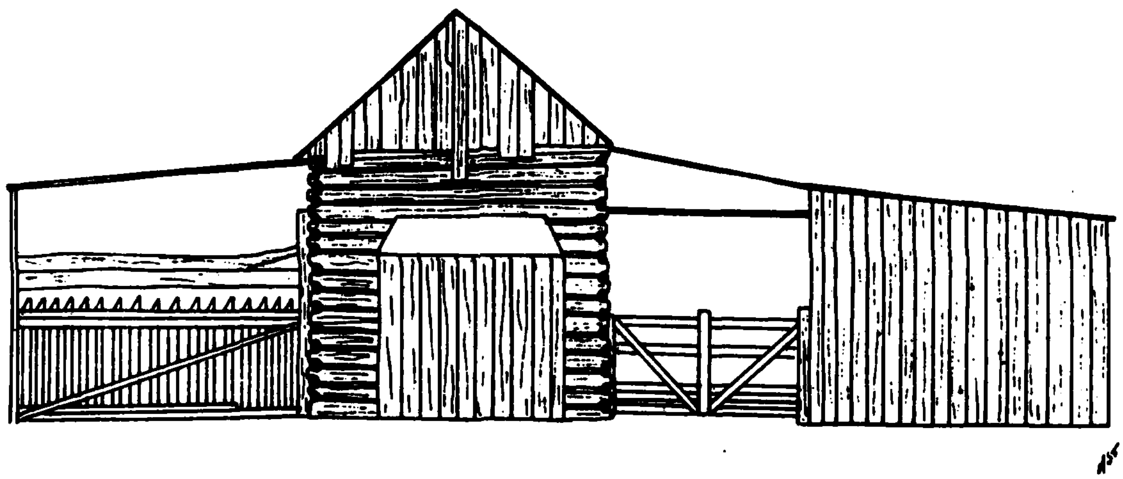


Figure 4.54 Site H007 Elevaton.

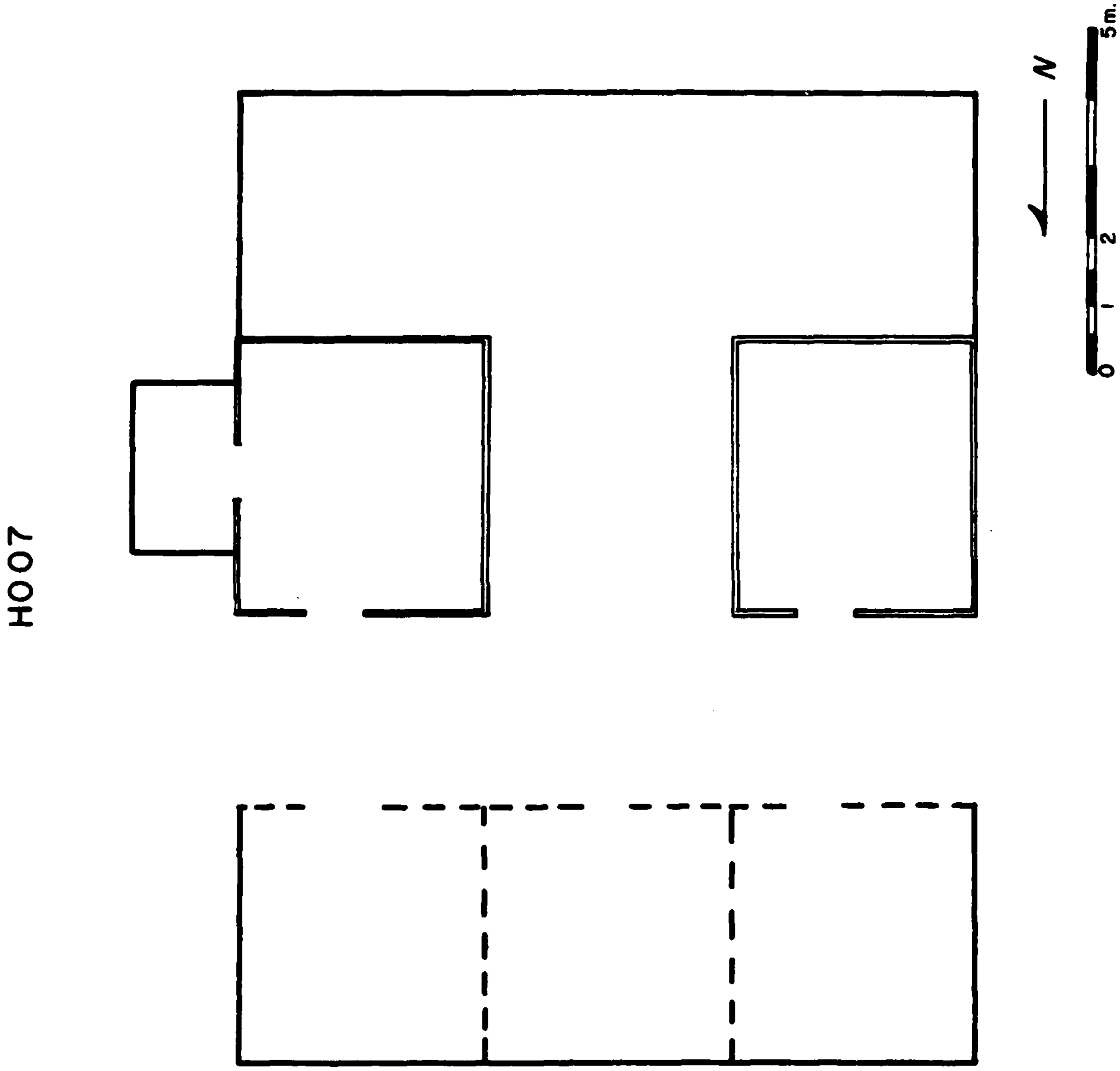


Figure 4.55 Site H007 Plan.

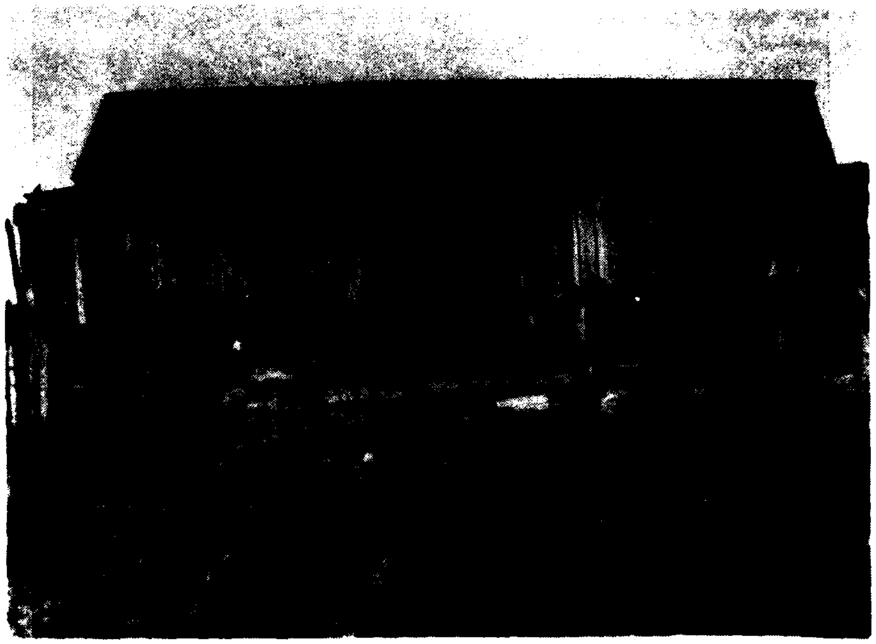


Fig. 4.56A (H007) Side view of barn with plank addition.

Fig. 4.56B (H007) Side view of log barn showing original log building in center and additions on either side.

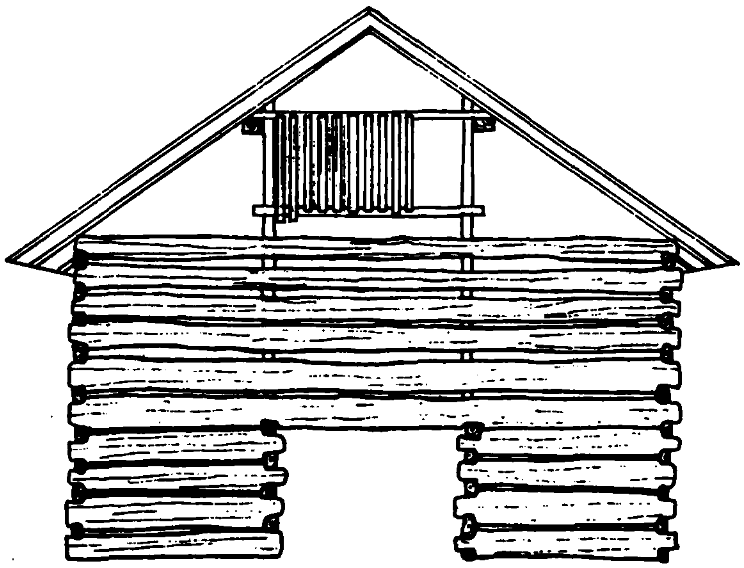


Figure 4.57 Site BS40 Elevation.

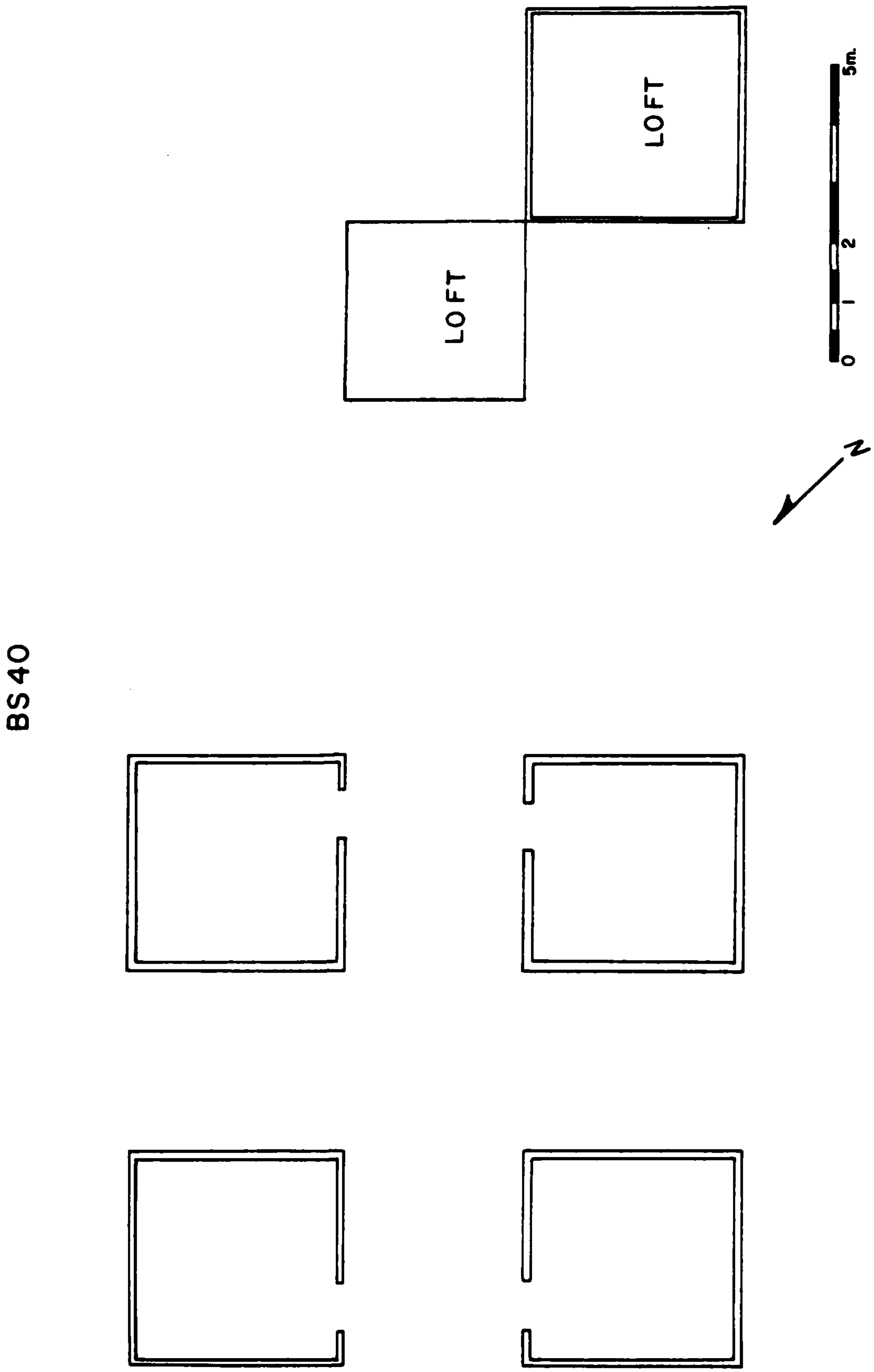


Figure 4.58 Site BS40 Plan.

Fig. 4.59 (BS40) Front and side views of four-crib barn showing driveway, corner cribs and height of log walls.

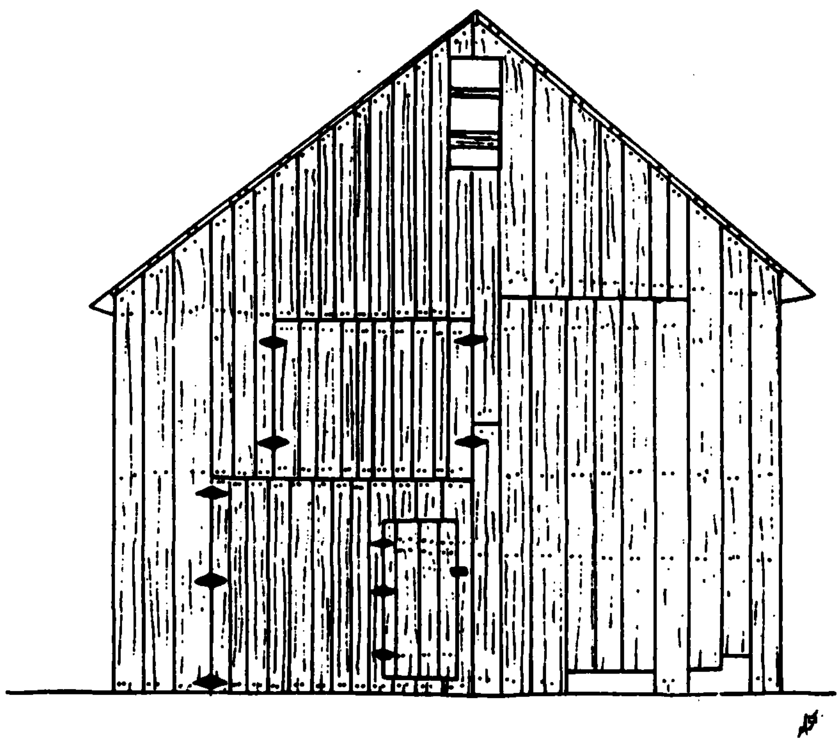


Figure 4.60 Site HO33 Elevation.

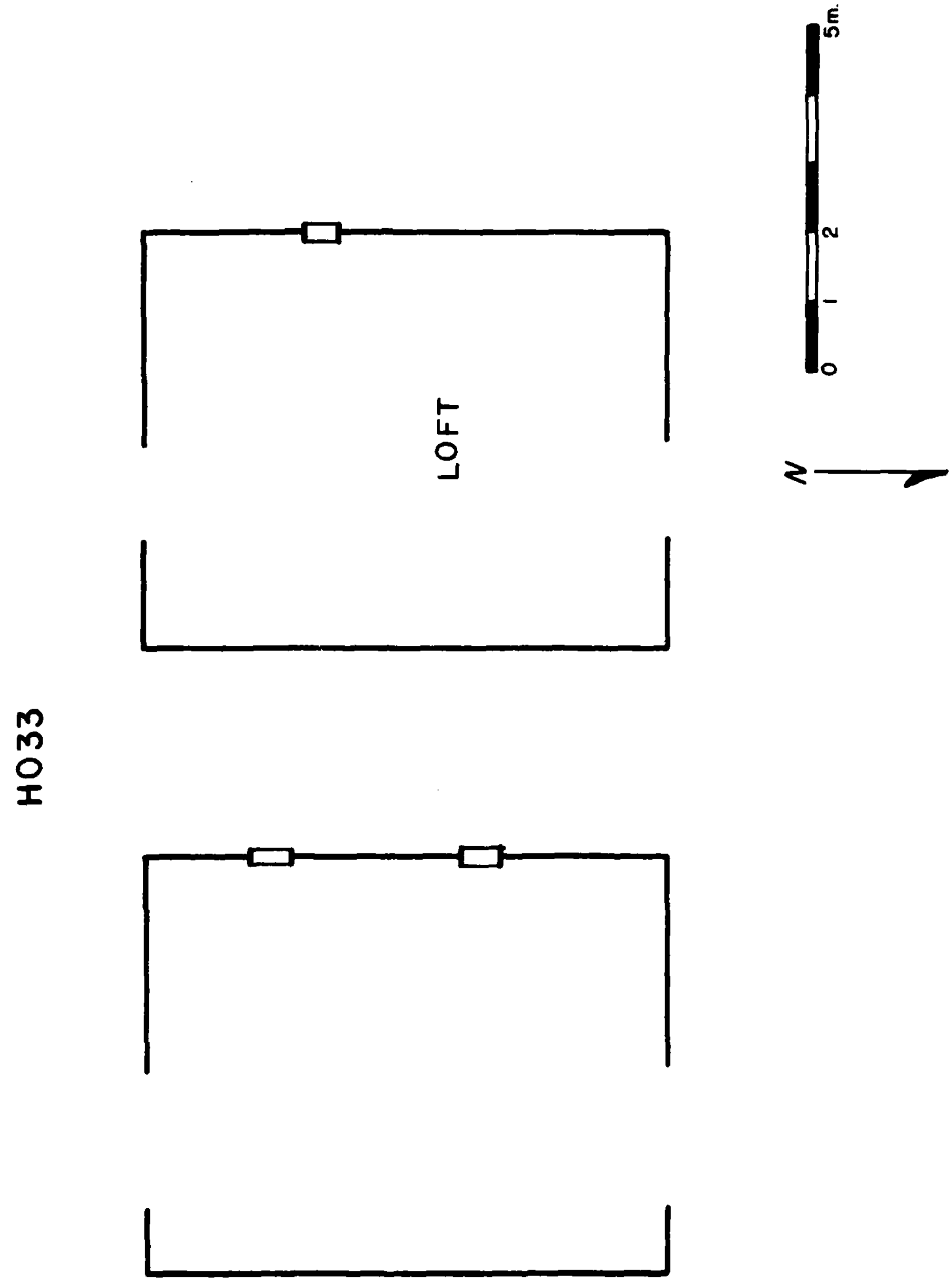


Figure 4.61 Site HO33 Plan.

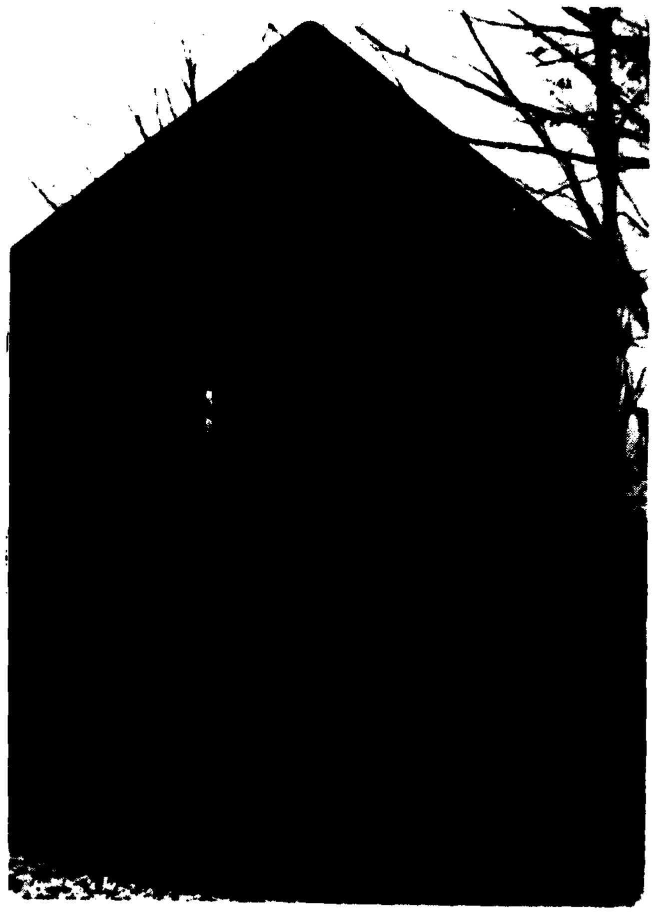


Fig. 4.62 (H033) Rear view of barn.

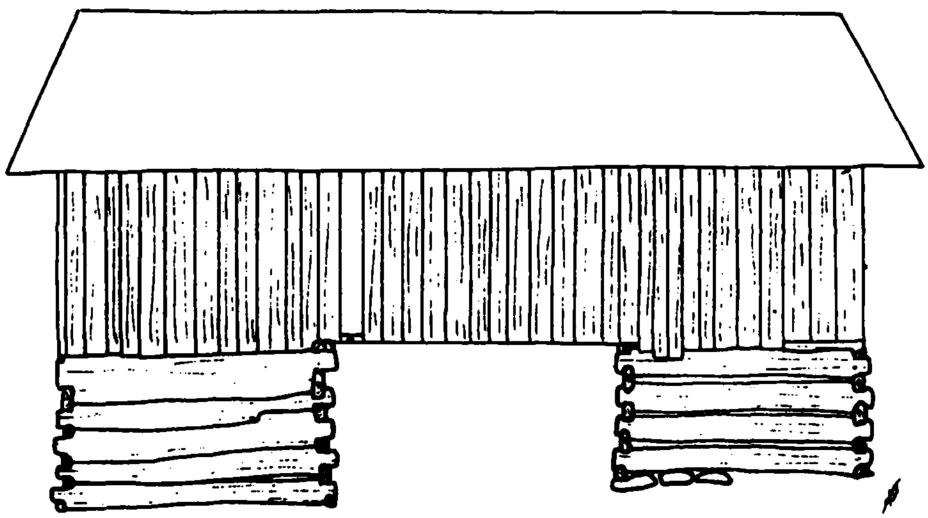


Figure 4.63 Site BS50 Elevation.

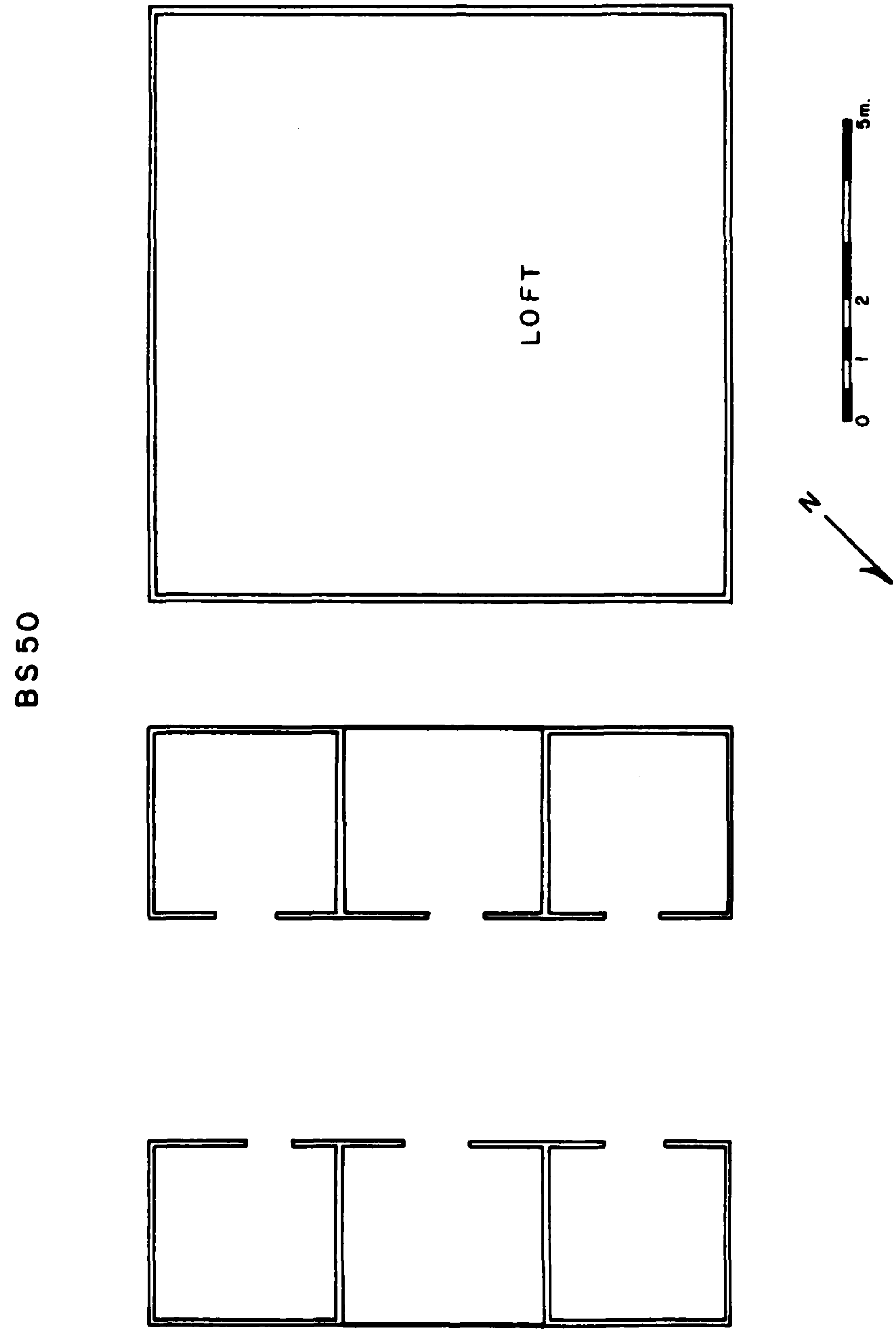


Figure 4.64 Site BS50 Plan.

Fig. 4.65A (BS50) Side view of barn showing driveway and log cribs.

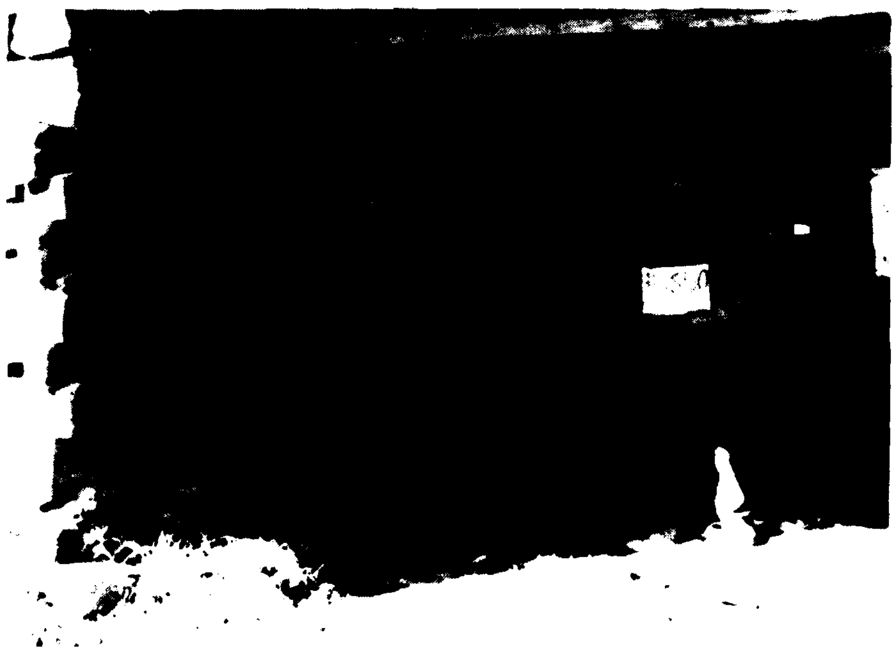


Fig. 4. 65B (BS50) Interior shot of log cribs and driveway.

V. SETTLEMENT PATTERNS

A. CODING PROCEDURE

A series of environmental variables was coded for each of the 273 building sites (both archaeological and standing buildings) located during field survey in the BSFNRRA. An additional 200 building sites, located on a 15 minute 1934 topographic map of the Barthell Quadrangle, were coded with the same variables. A control sample of 125 non-site points was placed at 2,000-meter Universal Transverse Mercator (UTM) grid intervals throughout the survey area. These 125 non-sites also were coded for environmental variables. The non-site points were selected for use as a control sample and were used in determining structure locational preference of building sites identified in the BSFNRRA. Environmental variables were based on those used by the Indiana University Glenn Black Laboratory in conjunction with the ORACLE system (Limp 1978). A list of these variables and a short description on how sites and non-sites were coded follows.

<u>Field Identification Number</u> - Building sites within project boundaries were first located on 7.5 minute USGS topographic maps dating between 1952 and 1955. Each quadrangle was assigned an alphabetic identification code (i.e., Honey Creek = H) and each building on the quadrangle was assigned a 2 or 3 digit number. This system was used to give each building within project boundaries a field identification number (i.e., ST04 = Stockton quadrangle, building #4).

<u>Major Watershed</u> - The major watershed for all sites in the BSFNRRA was the Big South Fork of the Cumberland River.

<u>UTM Northing and Easting</u> - The Universal Transverse Mercator coordinates based on the small blue tick marks on the margins of the USGS topographic maps were determined for all sites.

<u>Closest Named Water</u> - The closest named water is the principal body of water in closest proximity to the site as identified on the USGS topographic map. When a site is located near a small unnamed stream, but within the floodplain of a larger named stream, the larger named stream is considered the closest named water.

<u>Body or Hydrologic Type</u> - The nearest water was coded as a: (1) stream or river, (2) spring, (3) lake, (4) oxbow, (5) swamp, or (6) lateral lake. In every case in the BSFNRRA, the closest water was either a stream or river, and therefore all were coded as 1.

<u>Class</u> - This is the stream rank order in the Strahler system. Generally, streams are ordered from their origins beginning with a stream order of 1. When two streams of rank order 1 come together, the resulting stream is a rank order 2. When two streams of rank order 2 come together, the resulting stream is rank order 3, etc. If a 1 and a 2 come together, the resulting stream is still rank ordered 2. Streams must be of the same order when intersecting in order for the rank to change. When the closest water is an unnamed stream, it is the unnamed stream rather than the closest named water that is coded for class.

<u>Intersection</u> - This is the presence or absence of a stream intersection within 200 meters of the site. If only one body of water is involved, a "0" is recorded. When two streams intersect, it is the class (stream rank order) of the intersecting stream that is coded as the intersection. If the site lies on the smaller stream, the intersecting

stream is the larger one. If the site lies on the larger stream, the intersecting stream is the smaller one. In the event that a site is near multiple intersections, the larger stream is coded.

Direction - Direction is the direction from the site to the nearest water. This does not refer to intersection. Codes are: N, NE, E, SE, S, SW, W, and NW.

Distance - This is the shortest distance (in meters) from the edge of the site to the nearest water. This does not refer to intersection.

Elevation of Water - This is the elevation (in feet above sea level--MSL) of the closest water source as represented on the USGS topographic maps.

Elevation of Site - This is the elevation (in feet above sea level-MSL) of the site, taken from the USGS topographic maps.

Soil 1, Soil 2, Soil 3 - Soils were determined from County Soil Surveys. Three letter alphabetic codes were developed from the county soil maps. Soil 1 is the soil underlying the site. Soil 2 is the major soil (by area) within 2,000 meters in any direction from the site. Soil 3 is the next most major soil in the 2,000 meter circle. Because only soil association series maps were available for Scott County, all sites were coded according to the soil association series to maintain comparability of data.

Topographic Setting - This is a three digit numerical code for topographic feature. The following features and codes were used:

Floodplain Features:
- 060 Floodplain Flats
- 040 Floodplain Ridge
- 010 Natural Levee
- 061 Riverbank/Buried
- 045 Terrace Remnant on Floodplain

Terrace Features:
- 101 T-1 Margin
- 111 T-1 Flats
- 102 T-2 Margin
- 103 T-3 Margin
- 112 T-2 Flats
- 113 T-3 Flats
- 620 Ohio Lacustrian Plain
- 170 Dune on Terrace

Slope Features:
- 210 Talus
- 230 Hillside
- 200 Bluff Base
- 220 Low Terminal Ridge Spur
- 240 Bench

Bluff Top Features:
- 510 Bluff Top
- 530 Bluff Top, Head of Gulley
- 500 Bluff Top, Ridge Spur

Upland and Watershed Features:
- 300 Upland Flats
- 320 Watershed Knob

340 Watershed Ridge Crest
330 Watershed Saddle

Slope - The difference between the highest and lowest contours within a 500-foot radius of the site was calculated to determine a percentage of slope.

Aspect - The direction (N, NE, E, SE, S, SW, W, and NW) toward which the slope of the site, or nearest the site, faces.

In addition, the U.S. Army Corps of Engineers tract number was recorded for each site as it appeared on the tract maps secured from the Oneida Corps office. Each building site was coded as to whether there was a building standing (1), or not standing (2), on the site. Based on the symbol used on the USGS maps and field survey, each building site was coded for the type of building: 1 = dwelling, 2 = barn, and 3 = other outbuilding.

Flood potential of sites and non-sites on the Big South Fork Area was readily determinable from several sources of information. However, there does not appear to be comparable data on such tributary streams as Station Camp and No Business Creek. Therefore, flood potential was excluded as a variable because of our inability to code it for all sites. There is abundant evidence that all low-lying situations have been subjected to periodic flooding, most prominantly along the main channel of the Big South Fork. Examination of the Bear Creek Gaging Station, the presence of stranded logs on the Whipple Truss Bridge, and informant testimony make it clear that areas of the Big South Fork Gorge lying below approximately 810 feet MSL have been subjected to severe and highly destructive flooding. In particular, the entire communities of Blue Heron, Worley, and Yamacraw have been obliterated by flooding. The only structure which survived this inundation is the Blue Heron Tipple and Tramway.

With regard to vegetation, it was anticipated when ECI's initial proposal was written that field work would be initiated in late September. Unfortunately, a notice to proceed was not received until December 1. By this time, deciduous trees in the project area were no longer in leaf, rendering species identification extremely difficult. Examination of twigs and bud scars could not be accomplished within the time constraints imposed by our efforts to complete field work before winter snowfall. For this reason, vegetation was excluded from consideration as an environmental variable.

A summary description of the environmental information for each site and non-site appears in Appendix B "Locational Information."

B. SUMMARY STATISTICS ON SETTLEMENT PATTERNS

Four sets of cross-tabulations were computed for the non-site data files and the data file of sites from 1934 and the 1950s. These four sets are:

1. 1950s Kentucky and Tennessee sites/Kentucky and Tennessee non-sites
2. 1934 Kentucky sites/Kentucky non-sites
3. 1950s Kentucky sites/Kentucky non-sites
4. 1934 Kentucky sites/1950s Kentucky sites

Tables 5.1, 5.2, 5.3, and 5.4 give the results of these cross-tabulations. The analysis resulted in information about the relationship between the sites and specific environmental variables. It was not always possible to code the information on every variable for each environmental point or site location. Therefore, in Tables 5.1-5.4,

totals in variable frequency columns may not equal the total number of sites or environmental points.

The comparison yielded results which point to a non-random distribution of cultural sites over the land. Eight of the environmental variables seem to exhibit differential importance for building location in the Big South Fork area. These are topographic setting, elevation of site, slope, aspect, distance to water, direction to water, stream rank order, and intersection. Table 5.5 contains the significance levels computed for cross-tabulations between the sites and non-sites on various environmental variables.

In order to facilitate comparability with nominal level variables, a number of variables of interval level were recoded into nominal level aggregates. The primary data, however, are presented in Appendix B in non-recoded form. Topographic features were recoded into six broad categories - floodplain, terrace, slope, bluff top, and upland and watershed features. Only four of these categories--floodplain, slope, bluff top, and upland and watershed--appeared in the Big South Fork data, however. Slope was recoded into three categories: 0-15 percent, 16-30 percent, and 31 percent or greater. Distance from water was recoded into three categories: 1-99 m, 100-399 m and 400 m and over. Elevation of site was recoded into three categories: 1-799 ft, 800-1,199 ft, and 1,200 ft and higher.

Comparison of the historic building sites with non-sites in the Big South Fork area produced some interesting results. Both the 1950s data and the 1934 Kentucky data suggest that floodplain locations were preferred for building sites. There is very little floodplain in the area, and no environmental points occurred in floodplain features. Because farming has been one of the major economic activities in the area, relatively flat sites in the floodplain would be expected to be preferred locations. There is also a slight avoidance of slope features when sites are compared with the non-sites (39.9 percent versus 57.5 percent), but for the most part the distribution of sites and non-sites for all other features is similar.

A preference was observed for sites on elevations less than 800 ft MSL. Two percent of the non-sites were located on elevations less than 800 ft MSL as compared to 16 percent for the 1950s sites and 58 percent for the 1934 Kentucky sites. Areas over 1,200 ft MSL were avoided as locations for buildings. Seventy-four percent of the non-sites occurred at elevations over 1,200 ft MSL.

Historic building sites were also more often located within 100 m of water. Locations within 100 m of water were preferred by the 1950s inhabitants (39 percent of the sites) as well as by the 1934 Kentucky inhabitants (58 percent of the sites). Non-sites did not occur as frequently in locations within 100 m of water (12 percent of the sample).

Direction to the nearest source of water is fairly evenly distributed across all directions. There is, however, an avoidance of sites where water is to the east in the 1950s data (5 percent for 1950s versus 15 percent for 1934). The 1934 Kentucky data show a preference for sites with water to the west (20 percent in 1934 versus 10 percent in the 1950s data) and southeast (22 percent versus 7 percent), and no avoidance of locations where the nearest water is to the northeast (6 percent for 1934 versus 25 percent for 1950s).

Building sites occurred near (within 200 m) stream intersections significantly more often than did non-sites. Non-sites occurred in locations within 200 m of stream intersections in only 7 percent of the cases. The 1950s sites were located near stream

intersections 25 percent of the time and the 1934 Kentucky sites were located near stream intersections 31 percent of the time.

Northeast aspects (or slope face directions) were avoided as building sites by both the 1950s inhabitants (9 percent) and the 1934 Kentucky inhabitants (4 percent) when compared with the 20 percent occurrence in the non-site data file. Eastern aspects were preferred as locations for building sites in the 1934 Kentucky data (22 percent versus 3 percent for the 1950s data).

Although cross-tabulations with slope as the independent variable resulted in a significant Chi-square score, no clear pattern of preference or avoidance can be seen in the data.

The detailed presentation of locational data is provided here and in Appendix B in the hope that it may be useful in future comparative studies of settlement patterns in the Cumberland Plateau and elsewhere in the eastern United States. While the Fort Knox data employed a generally similar coding procedure and technique, the results are not strictly comparable because of the absence of any chronological control for historic sites at Fort Knox. No other comparable data set exists. Therefore, we have sought to provide an integrative framework for the results of the Big South Fork study by referencing in a very general and non-statistical way the results of previous research in the next section of this chapter.

C. THE BIG SOUTH FORK AS AN HISTORIC FRONTIER

Price and Price (1978) in their study of Ozark Escarpment settlement patterns in southeast Missouri identified three general types of settlement:

1. hunter-squatter -- these settlers were highly mobile and their subsistence was based on hunting, trapping, and trading with little or no emphasis on agriculture.
2. small-scale agriculturalist -- small-scale farmers, these settlers also raised livestock and participated marginally in the market system.
3. planter -- this system is based on intensive commercial agriculture centering on the production of one cash crop, participation in the market system, and exploitation of a non-free labor force.

These same types were employed in the archaeological investigations at Fort Knox, Kentucky (O'Malley et al. 1980). The most numerous type identified in both studies was the small-scale agriculturalist. This is true as well for the BSFNRRA data. However, it is felt that the model Price and Price delineate is overly simplistic in the sharp contrast they draw between the hunter-squatter and the small-scale agriculturalist. It is, rather, an evolutionary continuum with a gradual increase over time in the reliance on domesticates, particularly corn, hogs, forage crops, and cattle.

In the Big South Fork area, historical evidence suggests that the earliest settlers pursued a variety of economic alternatives: hunting, trapping, trading, and raising small vegetable gardens. All these pursuits were subsistence-based rather than market-oriented. The reliance on hunting and trapping gradually became less and less important as settlers cleared more land, grew more crops, and began raising hogs, chickens, sheep, and cattle. As communication routes were established, these subsistence farmers were able to market some of their products. There is no clear-cut boundary between hunter-squatter subsistence-based settlements and small-scale agriculturalist settlements in the data from the Big South Fork area. Instead, a

continuum with settlement patterns ranging from hunters/trappers/traders to subsistence farmers to mixed farmers/herders can be seen.

Price and Price (1978) also discuss a locational model of historic settlement for the Ozark Escarpment. This locational model is based on one type in a community -- the nuclear family farmstead. These nuclear family farmsteads occur with the earliest settlers in the area and are characterized by self-sufficient food production and an emphasis on raising corn and hogs, with some trapping and hunting. These initial settlers settled in family-related clusters because of a pattern of moving to frontier areas by family groups. Space was necessary between farmsteads because of the competition for natural resources. Price and Price found that two factors played an important role in the choice of farmstead location: access to natural resources and access to established trading and communication routes. Thus, the pattern was to settle along pre-existing transportation routes. As the population of the region increased, new transportation routes were established and new settlement patterns emerged. The general trend found in the Ozark region consists of initial settlement in highland stream valleys along the Natchitoches Trace, a major overland road. Later settlement occurred in valleys and lowlands. Ridge tops were the last areas to be settled.

This model also can be applied, to some extent, to what is referred to as the dispersed hollow and semi-dispersed ridge top communities in the Big South Fork area. The dominant family type for early settlers in the area seems to have been the nuclear family or minimally extended family. These initial residents also maintained self-sufficient households. Also, evidence exists that many of the settlements in the Big South Fork area were originally kin-based, consisting of agnatically related households. Arnow (1963:21-22) states that "early settlers had migrated in groups of kin and in-laws." The spacing between farmsteads in these early communities also correlates with the findings of Price and Price. Communities of the dispersed hollow type are temporally the earliest pattern in the area. Farmsteads were maximally dispersed over an area because of competition for wild animal resources. (This is discussed in detail below.) Transportation routes played a major role in the settlement of the Big South Fork area. Early communities were located along the Big South Fork River and its major tributaries. Later, as roads were built on ridge tops, these areas were settled. The settlement trend is similar to that of the Ozark region, with early settlement occurring in stream valleys and later settlements on ridge tops.

The general patterns of change in the present study show a similarity to the patterns recognized by Price and Price, as discussed above; however, it is felt that a higher level order of explanation is demanded by both our research and that of Price and Price. Lewis' (1977) concept of the evolution of frontier communities may provide this kind of explanation.

Lewis defined the frontier as a "region in which the dispersal of settlement into a new territory takes place. It is the zone that separates the unsettled and settled portions of a territory that lie within or under the effective control of a state" (Lewis 1977:154). The Big South Fork area can be considered a frontier during its early history because the first people that came to the region came from the settled areas of Virginia and North Carolina.

The frontier model is characterized by five conditions:

1. prolonged contact continually maintained between colonists and parent society;
2. loss of complexity as a result of its relative isolation and the attenuation of trade and communication linkages;
3. the settlement pattern becomes more geographically dispersed than that of the homeland;
4. the dispersed settlement is centered around central areas called frontier towns; and,
5. geographical variation occurs through time (Lewis 1977:154-155).

Although not all of the above characteristics are found in the Big South Fork area, there are similarities in the settlement system adopted in the area. Unfortunately, very little historical information is available about the early history of the Big South Fork basin. It will be necessary to infer some of the missing information in order to compare the five conditions of Lewis with the Big South Fork region.

The first criterion, that contact be maintained wth the parent society, seems to be true for the BSFNRRA. Trade of locally procured furs in exchange for guns and other manufactured items probably constituted the main linkage with the parent society during the early settlement period.

There was a loss of complexity with the move from the east and south into the new region. Settlers had to lead a more simple life than they had in Virginia and North Carolina. Community recruitment was kin-based rather than voluntary.

The earliest settlement pattern identified in the Big South Fork area is the dispersed hollow type. Farmsteads in these communities were more dispersed than later communities in the area. Although these communities were not centered around what might be called a "town," they did have a central focus. A school, church, and sometimes a post office or general store were located in each of the communities. These small clusters may well have served the same function as a frontier town. They at least provided a social and religious center for the surrounding farmsteads.

As the economic alternatives in the Big South Fork area changed, mainly with the construction of new transportation routes and the introduction of industry, the geographically dispersed settlements changed. As larger towns and cities grew in other areas of the region, the small centers in each community no longer occupied strategic positions and declined in importance and population until they were eventually abandoned.

Although many of the specifics are not exactly comparable with the criteria Lewis specifies, this model provides a better understanding of the BSFNRRA in a wider context. It can be seen as an emerging frontier, with dispersed settlements gradually gaining more population until new trade routes were established. Before roads were built through the area, the small community settlements probably provided a link between the farmstead and the distant larger society.

Four intra-community settlement patterns were identified in the survey of the architectural and engineering resources of the BSFNRRA. These types are somewhat dependent upon economic patterns as well as topographic features. A brief description of each type is presented below. Intra-farmstead settlement patterns (the arrangement of buildings within a farmstead) were impossible to document because the sample of intact farmsteads was too small for any analysis of patterns. Schematic

representations of the arrangement of structures within the four intact historic (pre-1930) farmsteads identified during the field survey are presented in Figures 5.1A, B, C and D.

1. Dispersed Hollow Pattern

The dispersed hollow pattern is found on the floodplains of the Big South Fork and its major tributaries (e.g., Station Camp, No Business). Average distance between farmsteads is greater than in any other type. A possible explanation for this dispersed pattern is that it may be due to the important role of hunting and trapping in the early economy of the area. One informant of the Big South Fork Folklife Study talked about the early settlers moving around a great deal as they depleted the resources of an area by hunting and trapping (Duda 1979). The dispersed hollow pattern is illustrated in Figure 5.2A.

2. Planned Linear Arrangement

The planned linear arrangement occurs only in communities constructed by the Stearns Company (Figure 5.2B). The communities of Yamacraw, Worley, Blue Heron, and a portion of the community of Barthell lie within the project area. Each of these communities is characterized by a linear arrangement of miners' houses paralleling the railroad lines and streams (Big South Fork and Roaring Paunch Creek). There is some evidence to indicate that the residences of company doctors and mine superintendants were physically removed from the houses of the miners. Inter-house spacing of the miners' houses is much smaller than in any other settlement type.

3. Clustered Informal Pattern

The clustered informal pattern is found in the mining community of Zenith (Figure 5.3A). Houses are relatively closely spaced as in the planned linear arrangement discussed above, but there is no linear pattern nor any other formal pattern to house location.

4. Semi-dispersed Ridge Top Pattern

The semi-dispersed ridge top pattern consists of farmsteads scattered along roads and tributaries of the Big South Fork (Figure 5.3B). While the inter-farmstead spacing is fairly large, farmsteads are substantially closer together than in the dispersed hollow pattern. This appears to be the result of a more intensive agricultural pattern with less reliance on hunting and trapping in these communities.

These four settlement patterns may also be temporally ordered. The dispersed hollow pattern appears to be the earliest settlement pattern type in the area. The principal architectural form associated with this pattern is the single-pen log house.

With the introduction of mass transportation into the area and the coming of the railroads, company towns of the planned linear arrangement and the clustered informal type were built at Worley, Yamacraw, Blue Heron and Zenith. These towns represent the introduction of box- and balloon-frame construction techniques in the Big South Fork area. The exact type of houses in these early mining communities remains uncertain. Future archaeological studies in the BSFNRRA should be addressed to determining house size and room plan in these communities.

The advent of road construction along ridge tops in the area led to the appearance of a new settlement pattern. The two-pen Cumberland house is closely associated with this community pattern in the Kentucky portion of the project area. Log construction apparently remained the preferred house construction technique in Tennessee until the late 1920s.

Table 5.6 presents information about the communities in the BSFNRRA, their corresponding settlement pattern type and dominant house type. Dates are given for the approximate time span of the community. These were based on mine openings and closings, construction dates of buildings, and historical documentation. Population estimates were derived from multiplying the inferred number of farmsteads per area by an estimate of the number of people per farmstead. The number of persons per farmstead is based on information from the 1930 Census of Housing.

Gradual abandonment of the BSFNRRA during the 1940s and 1950s brought about the demise of these settlement types.

Table 5.1
1950s Kentucky and Tennessee sites compared
with Kentucky and Tennessee non-sites

	1950s frequency	1950s percent	Non-site frequency	Non-site percent
Topographic setting				
Water	0	0.0	4	3.1
Floodplain	33	12.1	0	0.0
Slope	109	39.9	73	57.5
Upland	51	18.7	20	15.7
Bluff top	80	29.3	30	23.6
Direction to water				
North	29	10.6	11	8.8
Northeast	32	11.7	22	17.6
East	42	15.4	6	4.8
Southeast	23	8.4	17	13.6
South	30	11.0	12	9.6
Southwest	45	16.5	19	15.2
West	37	13.6	17	13.6
Northwest	35	12.8	21	16.8
Aspect				
North	21	7.7	8	6.3
Northeast	24	8.8	25	19.8
East	28	10.3	9	7.1
Southeast	34	12.5	26	20.6
South	34	12.5	12	9.5
Southwest	39	14.3	17	13.5
West	44	16.2	15	11.9
Northwest	48	17.6	14	11.1
Slope				
0-15%	106	38.8	36	28.3
16-30%	104	38.1	67	52.8
31-100%	63	23.1	24	18.9
Distance to water				
1-99	106	38.8	15	12.1
100-399 meters	75	27.5	57	46.0
400- meters	92	33.7	52	41.9
Elevation of water				
1-799 MSL	71	26.0	10	7.9
800-1100 MSL	116	42.5	64	50.4
1200- MSL	86	31.5	53	41.7

Table 5.1 (Cont.)

	1950s frequency	1950s percent	Non-site frequency	Non-site percent
Elevation of site				
1-799 MSL	43	15.8	3	2.4
800-1100 MSL	93	34.1	30	23.6
1200- MSL	137	50.2	94	74.0
Stream rank order				
1	92	34.1	37	29.1
2	29	10.7	33	26.0
3	45	16.7	21	16.5
4	22	8.1	3	2.4
5	82	30.4	33	26.0
Intersection code				
None	205	75.1	118	92.9
1	37	13.6	7	5.5
2	9	3.3	0	0.0
3	6	2.2	2	1.6
4	16	5.9	0	0.0

Table 5.2
1934 Kentucky sites compared with Kentucky non-sites

	1934 frequency	1934 percent	Non-site frequency	Non-site percent
Topographic setting				
Water	0	0.0	2	6.1
Floodplain	31	15.5	0	0.0
Slope	119	59.9	23	69.7
Upland	16	8.0	3	9.1
Bluff top	34	17.0	5	15.2
Direction to water				
North	14	7.0	3	9.7
Northeast	11	5.5	8	25.8
East	20	10.0	3	9.7
Southeast	43	21.5	2	6.5
South	11	5.5	3	9.7
Southwest	39	19.5	4	12.9
West	40	20.0	3	9.7
Northwest	22	11.0	5	16.1
Aspect				
North	15	7.5	2	6.1
Northeast	8	4.0	11	33.3
East	44	22.0	1	3.0
Southeast	33	16.5	5	15.2
South	12	6.0	3	9.1
Southwest	27	13.5	4	12.1
West	34	17.0	4	12.1
Northwest	27	13.5	3	9.1
Slope				
0-15%	28	14.0	5	15.2
16-30%	88	44.0	18	54.5
31-100%	84	42.0	10	30.3
Distance to water				
1-99 meters	115	57.5	4	12.9
100-399 meters	47	23.5	13	41.9
400- meters	38	19.0	14	45.2
Elevation of water				
1-799 MSL	133	66.5	10	30.3
800-1100 MSL	48	24.0	19	57.6
1200- MSL	19	9.5	4	12.1

Table 5.2 (Cont.)

	1934 frequency	1934 percent	Non-site frequency	Non-site percent
Elevation of site				
1-799 MSL	78	39.0	3	9.1
800-1100 MSL	69	34.5	16	48.5
1200- MSL	53	26.5	14	42.4
Stream rank order				
1	58	29.0	11	33.3
2	15	7.5	10	30.3
3	11	5.5	2	6.1
4	4	2.0	1	3.0
5	112	56.0	9	27.3
Intersection code				
None	138	69.0	32	97.0
1	39	19.5	1	3.0
2	14	7.0	0	0.0
3	6	3.0	0	0.0
4	3	1.5	0	0.0

Table 5.3
1950s Kentucky sites compared with Kentucky non-sites

	1950s frequency	1950s percent	Non-site frequency	Non-site percent
Topographic setting				
Water	0	0.0	2	6.1
Floodplain	19	14.7	0	0.0
Slope	57	44.2	23	69.7
Upland	0	0.0	3	9.1
Bluff top	53	41.1	5	15.2
Direction of water				
North	10	7.8	3	9.7
Northeast	11	8.5	8	25.8
East	18	14.0	3	9.7
Southeast	11	8.5	2	6.5
South	5	3.9	3	9.7
Southwest	25	19.4	4	12.9
West	22	17.1	3	9.7
Northwest	27	20.9	5	16.1
Aspect				
North	10	7.8	2	6.1
Northeast	10	7.8	11	33.3
East	14	10.9	1	3.0
Southeast	8	6.2	5	15.2
South	8	6.2	3	9.1
Southwest	23	17.8	4	12.1
West	23	17.8	4	12.1
Northwest	33	25.6	3	9.1
Slope				
0-15%	32	24.8	5	15.2
16-30%	51	39.5	18	54.5
31-100%	46	35.7	10	30.3
Distance to water				
1-99	51	39.5	4	12.9
100-399 meters	41	31.8	13	41.9
400- meters	37	28.7	14	45.2
Elevation of water				
1-799 MSL	71	55.0	10	30.3
800-1100 MSL	41	31.8	19	57.6
1200- MSL	17	13.2	4	12.1

Table 5.3 (Cont.)

	1950s frequency	1950s percent	Non-site frequency	Non-site percent
Elevation of site				
1-799 MSL	43	33.3	3	9.1
800-1100 MSL	35	27.1	16	48.5
1200- MSL	51	9.1	14	42.4
Stream rank order				
1	46	35.9	11	33.3
2	11	8.6	10	30.3
3	2	1.6	2	6.1
4	4	3.1	1	3.0
5	65	50.8	9	27.3
Intersection code				
None	100	77.5	32	97.0
1	18	14.0	1	3.0
2	5	3.9	0	0.0
3	2	1.6	0	0.0
4	4	3.1	0	0.0

Table 5.4
1950s Kentucky sites compared with 1934 Kentucky sites

	1950s frequency	1950s percent	1934 frequency	1934 percent
Topographic setting				
Floodplain	19	14.7	31	15.5
Slope	57	44.2	119	59.5
Upland	0	0.0	16	8.0
Bluff top	53	41.1	34	17.0
Direction of water				
North	10	7.8	14	7.0
Northeast	11	8.5	11	5.5
East	18	14.0	20	10.0
Southeast	11	8.5	43	21.5
South	5	3.9	11	5.5
Southwest	25	19.4	39	19.5
West	22	17.1	40	20.0
Northwest	27	20.9	22	11.0
Aspect				
North	10	7.8	15	7.5
Northeast	10	7.8	8	4.0
East	14	10.9	44	22.0
Southeast	8	6.2	33	16.5
South	8	6.2	12	6.0
Southwest	23	17.8	27	13.5
West	23	17.8	34	17.0
Northwest	33	25.6	27	13.5
Condition of Building				
Standing	19	14.7	10	5.0
Non-standing	110	85.3	190	95.0
Intersection Code				
None	100	77.5	138	69.0
One	18	14.0	39	19.5
Two	5	3.9	14	7.0
Three	2	1.6	6	3.0
Four	4	3.1	3	1.5

Table 5.5
Significance levels for locational variables

	Ky. & Tenn. vs. non-sites	Ky. 1934 sites vs. 1950s sites	Ky. 1934 sites vs. non-sites	Ky 1950s sites vs. non-sites
Aspect	.0142	.0031	.0000	.0023
Distance to Water	.0000	.0059	.0000	.0179
Direction to Water	.0525*	.0232	.0004	.1723*
Class	.0009	.2718*	.0010	.0051
Intersection	.0004	.2745*	.0233	.1522*
Topographic Feature	.0000	.0000	.0013	.0000
Elevation of Site	.0000	.0440	.0035	.0096
Slope	.0209	.0453	.4318*	.2618*

Significance levels are computed from the Chi-square test of significance. A number above .05 is considered to indicate a distribution not significantly different from random.

* = random distribution.

Table 5.6
Communities and Settlement Patterns in the BSFNRRA

Community	Settlement Pattern Type	Dominant House Type	Approximate Dates	Population Estimate
No Business	Dispersed Hollow	Single-Pen Log	1800(?)-1950s	48
Parch Corn	Dispersed Hollow	Single-Pen Log	1800(?)-1950s	24
Station Camp	Dispersed Hollow	Single-Pen Log	1800(?)-1950s	48
Bandy Creek	Semi-dispersed Ridge Top	Two-Pen Log	1900 - present	48
Leatherwood	Semi-dispersed Ridge Top	Frame house, type unknown	1920 - present	78
Wilson Ridge	Semi-dispersed Ridge Top	Two Room Cumberland	1907 - 1950s	36
Beech Grove	Semi-dispersed Ridge Top	Two Room Cumberland	1907 - 1950s	66
Shoopman	Semi-dispersed Ridge Top	Two Room Cumberland	1907 - 1950s	24
Otter Creek	Semi-dispersed Ridge Top	Two Room Cumberland	1907 - 1950s	48
Zenith	Clustered Informal	Frame house, type unknown	1916 - 1954(?)	78
Gernt	Clustered Informal	Frame house, type unknown	1916 - 1954(?)	Unknown
Blue Heron	Planned Linear	Four room Cumberland	1938 - 1962	150
Yamacraw	Planned Linear	Single and Double-Pen Frame	1905 - 1953	516
Worley	Planned Linear	Single and Double-Pen Frame	1905 - 1953	516
Barthell*	Planned Linear	Frame house, type unknown	1903 - 1953	30

* Estimate for portion of Barthell within the project boundaries only.

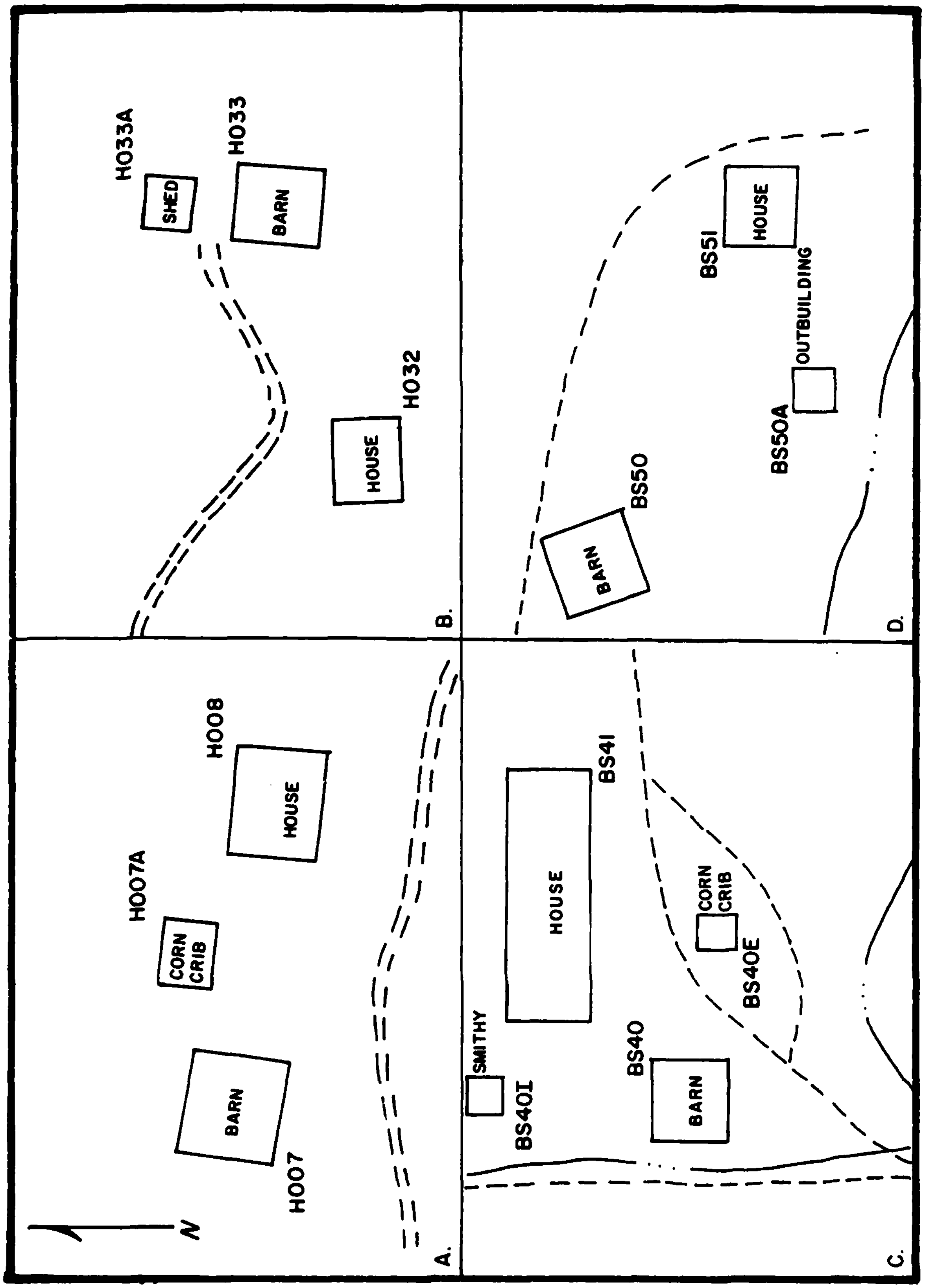


Figure 5.1 Schematic representations of farmsteads.
A. Clara Sue Blevins Campbell Farmstead.
B. Luther Thompson Farmstead.
C. Joe Simpson Farmstead.
D. General Slavens Farmstead.

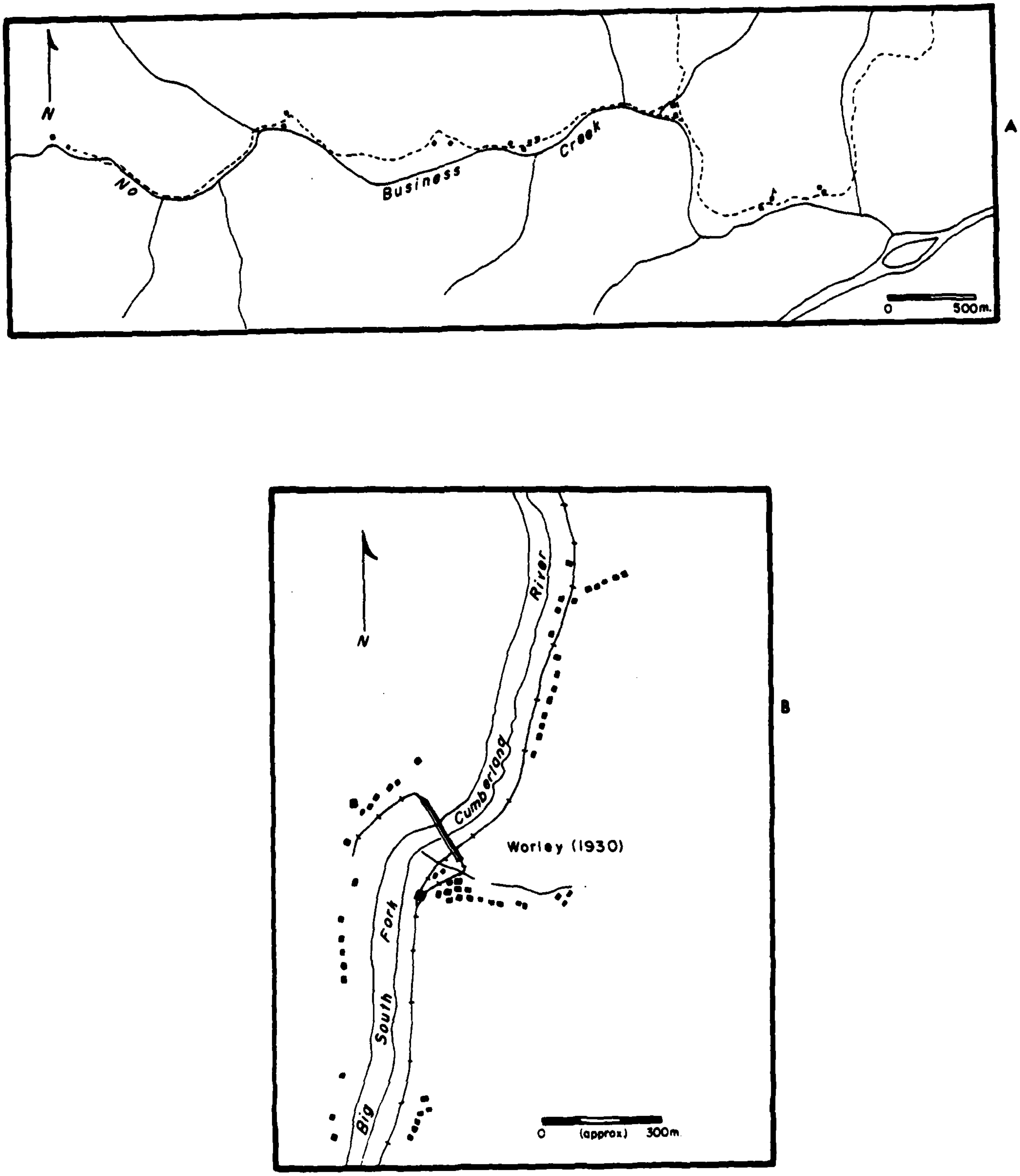


Figure 5.2 Intra-community settlement patterns.
A. Dispersed hollow pattern.
B. Planned linear arrangement.

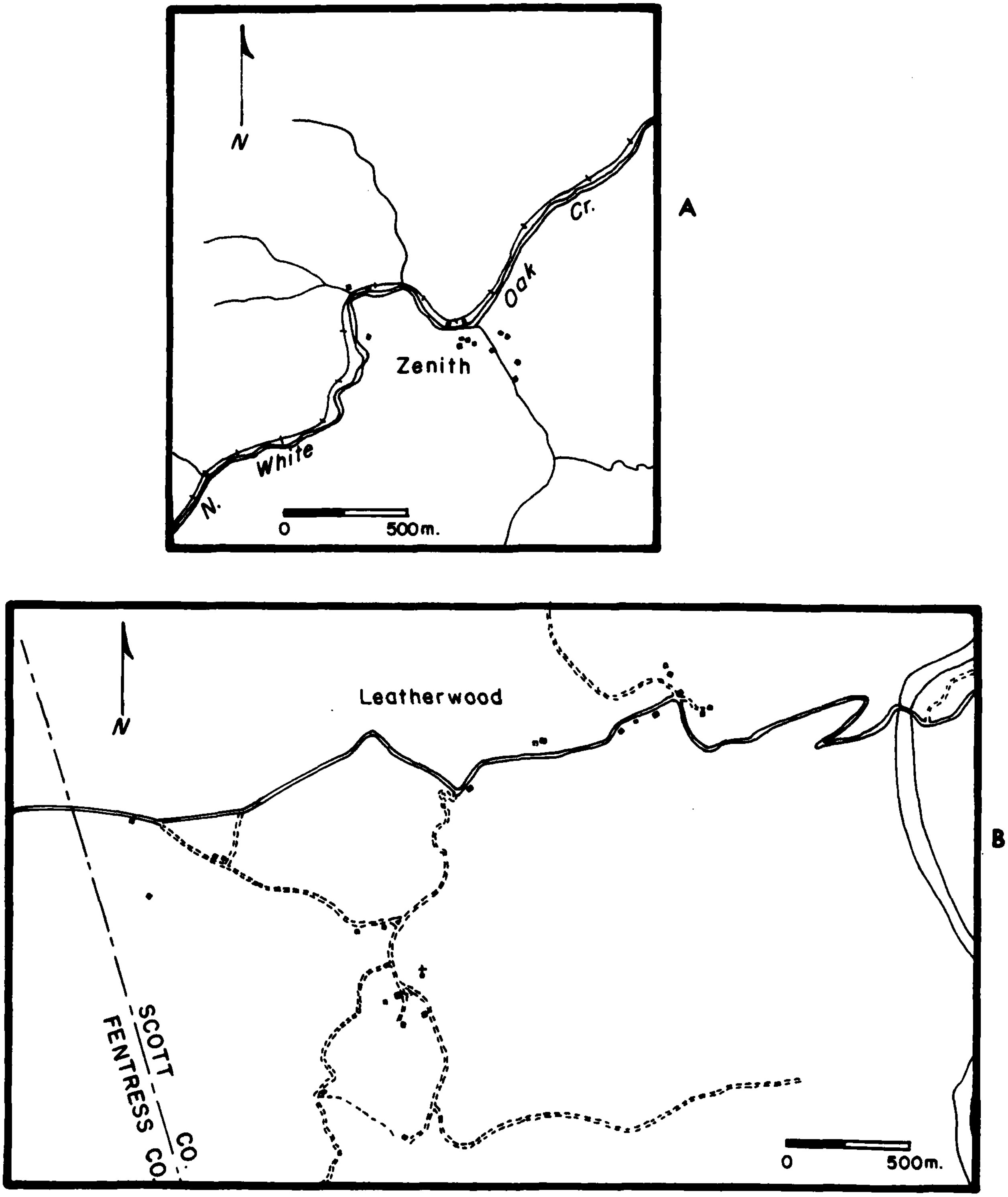


Figure 5.3 Intra-community settlement pattern.
A. Clustered informal pattern.
B. Semi-dispersed ridge top pattern.

VI. HISTORIC ENGINEERING RESOURCES

A. INTRODUCTION

The historic engineering resources of the Big South Fork area potentially can play an important role in the understanding of the advent of industrial exploitation of the resources of the region. These engineering resources must be considered both in terms of their intrinsic value as landmarks of engineering hsitory and in terms of their relationship to the particular economy and culture of the Big South Fork. The types of engineering resources encountered are described below, and general observations are made concerning their relationship to the economy and people of the Big South Fork.

A total of 25 engineering structure locations were identified by examination of the 1952 through 1955 topographic maps and were visited in the field. A total of seven bridges (probably all of plate-girder construction judging from examination of remaining abutments) on the North White Oak Creek stretch of the Oneida and Western Railroad were no longer extant. A former vehicular bridge at Worley also no longer exists. Four bridges constructed between 1935 and 1940 are present in the National Area. These bridges are described in Appendix C and included on NAER forms in Appendix G. None are of sufficient age to meet the National Register 50 year criteria and, hence, are not considered here. The total of potentially eligible engineering structures in the National Area is, thus, 13.

The engineering resources of the National Area include 10 bridges, two gaging stations, and a coal tipple/tramway. Each major type will be discussed and described below.

B. BRIDGES

Plate-girder bridges represent the most common type in the National Area. Six bridges (E004, E005, E006, E007, E008, E021) are of this type and consist of pairs of either wrought iron (E005, E006, E007, E008) or riveted steel (E004, E021) girders surmounted by railroad ties. All of these bridges represent the adaptation of salvaged materials (girders) to particular localities. E005, E006, E007, and E008 were erected on the Oneida and Western Railroad route between April 1914 and June 1915. The erection date of E004 is uncertain and may post-date initial construction of the railroad. The original location of these salvaged parts can be determined in only one case. The bridge at E021 was originally located at Lyon, New York, on the New York Central Railway. Presumably, both the girders and the steel support towers were salvaged and adapted for use on Roaring Paunch Creek by the Kentucky and Tennessee Railway to provide access to the Blue Heron Mine complex. The bridge was erected over Roaring Paunch Creek in 1937. It is illustrated in Figure 6.1.

Truss bridges are present at three locations in the National Area. Truss bridges have only recently come to be appreciated for the valuable historic resources they are (Comp and Jackson 1977). An examination of National Register properties in Kentucky and Tennessee reveals that no truss bridges are listed on the Register for either state at the present time. The State of Tennessee is, however, currently conducting an inventory of bridges to identify those with historical significance.

The Oneida and Western Railway bridge over the Big South Fork (E009) is a double intersection Pratt or Whipple truss. Whipple truss bridges are inclined end-post Pratts with diagonals that extend across two panels. They were manufactured between 1847 and the beginning of the 20th century (Comp and Jackson 1977). The 200-ft Whipple Truss in the National Area was salvaged from a previous location and erected on its

current site in 1914 or 1915. Nashville Bridge Company erected the bridge, but the company has no records indicating the original location from which this bridge was removed. This bridge is illustrated in Figure 6.2.

Peter's Bridge (E001) is a Pratt through truss bridge. This bridge type was manufactured between 1844 and the beginning of the 20th century, and is characterized by diagonals in tension and verticals in compression (Comp and Jackson 1977). Peter's Bridge is illustrated in Figure 6.3.

Burnt Mill Bridge (E003) consists of two spans. One is a Pratt through truss while the other is a Pratt pony truss. Pony truss bridges are characterized by the absence of struts and top lateral bracing. These spans are illustrated in Figure 6.4.

No records exist which indicate whether the Pratt truss bridges (E001, E003) are at their original locations or whether they have been moved from other sites. Bridges at both locales probably were erected in the 1920's.

The oldest bridge in the National Area is a ballast-filled concrete arch railroad bridge which crosses the Big South Fork at Yamacraw (E023). The bridge was designed by Ward Baldwin and built in 1907, and according to Kentucky and Tennessee Railway officials, was the largest of its type in the South at the time. This bridge is illustrated in Figure 6.5.

C. GAGING STATIONS

Two gaging stations are present in the National Area. These probably date from the 1920's. A single structure is located near Burnt Mill Bridge, and is composed of reinforced concrete. At Bear Creek, two concrete block structures are present with one located uphill from the other. It seems probable that the lower gaging station is completely inundated at times. No comparative literature on gaging stations exists, thereby making typological comparison difficult.

D. COAL TIPPLE/TRAMWAY

The Blue Heron tipple was a modern coal processing facility when it began operations in 1938. Although the plant was designed on the basic rule of cleaning coal at the working face in the mine, the tipple contained horizontal picking tables ahead of the three loading booms. Men hand-cleaned the coal as it moved along on the picking tables. Vibrating screens handled fractions from the main shakers and a crusher (with special fine-tooth segments and necessary conveyors) met the rapidly growing demand for stoker coal. An outstanding feature of the plant design was a separate mine-car dump bin and a two-speed reciprocating feeder and apron-type inspection table over which a large percentage of the mine output could be inspected. The relation of the tipple to other buildings at Blue Heron is shown in Figure 6.6. The present condition of the tipple is illustrated in Figure 6.7.

As a result of 16 years of experience with drop-bottom mine cars at some of the other tipples, Stearns engineers selected the carriers of that type for the Blue Heron tipple. Fifty drop-bottom mine cars (42-inch gage) were custom made in the Stearns central shop. The drop-bottom mine cars could be dumped "en train" into a 120-ton track bin situated next to an inspection dump hopper. Coal from the 120-ton hopper and from the inspection table was then conveyed to the main screens by an apron-type feeder 76 ft long.

Vibrating screens handling 1x0" material, which had passed through the top section of the main shaker, prepared stoker coal by removing all the coal less than three-eights of an inch. Degradation removed from the egg and nut sizes by rescreens situated ahead of the picking tables was moved to the carbon track by the same conveyor that carried the under-size from the vibrators and which also moved the picking-table rejects to a seventh track, where the refuse was loaded into railroad cars for disposal. A cross conveyor, situated beyond the ends of the booms and encircling the crusher, delivered block, egg, or nut from the ends of the booms (in raised positions) to the crusher and carried the crushed product to a recirculating conveyor or to a choice of four loading tracks. Six sizes (from largest to smallest)--block, egg, nut, slack, stoker, and carbon--could be loaded simultaneously.

The main screen consisted of two balanced single-deck sections, each 8 ft wide, that were suspended from short pendulum hangers. Five screen plates in each section, ten in all, provided 320 square feet of screening surface. Two plates in the upper section and one in the lower were fixed, but all other seven plates were arranged for quick changing to make any standard size in the range 1-inch round to 8-inch round. The double-deck vibrating screen measured 5x14 ft and sat horizontal directly under the main shaker. The crusher, a 36x54 inch single-roll type of welded construction, had special manganese-steel fine-tooth crushing segments and roller bearings on both roller and counter shafts. Frictional resistance was so slight that a normal-torque motor would start the unit without hesitation.

Nineteen motors comprised the plant drive list and the total connected horsepower was 353. Except for one speed reduction on the inspection table, V-belts were used for the drive connections between motors and equipment. Wiring for both light and power was protected in rigid conduit and BX was used at the motors to provide flexibility for belt and adjustment. Magnetic starting and control switches were grouped in a dust-tight room and the pushbutton controls were mounted on a panel at the trimmer's platform. Automatic sequence starting was not selected, but instead the buttons were positioned on the panel in proper relation to the starting sequence. The two starting buttons and a speed change button for the inspection equipment were mounted at the inspection table. Emergency stop buttons were situated at four different points in the plant.

Protection against loading tramp iron with the stoker coal was afforded with loading-chute magnets designed and built at the Stearns main shop. Original plans included installing high-pressure oil-spraying equipment for dustless treatment of all coal sizes. A mine-tack scale with an automatic attachment was installed just ahead of the inspection hopper. Galvanized corrugated-steel originally covered the roof and sides of the entire plant.

Figure 6.1 (E021) Plate girder over Roaring Paunch Creek showing steel tower.

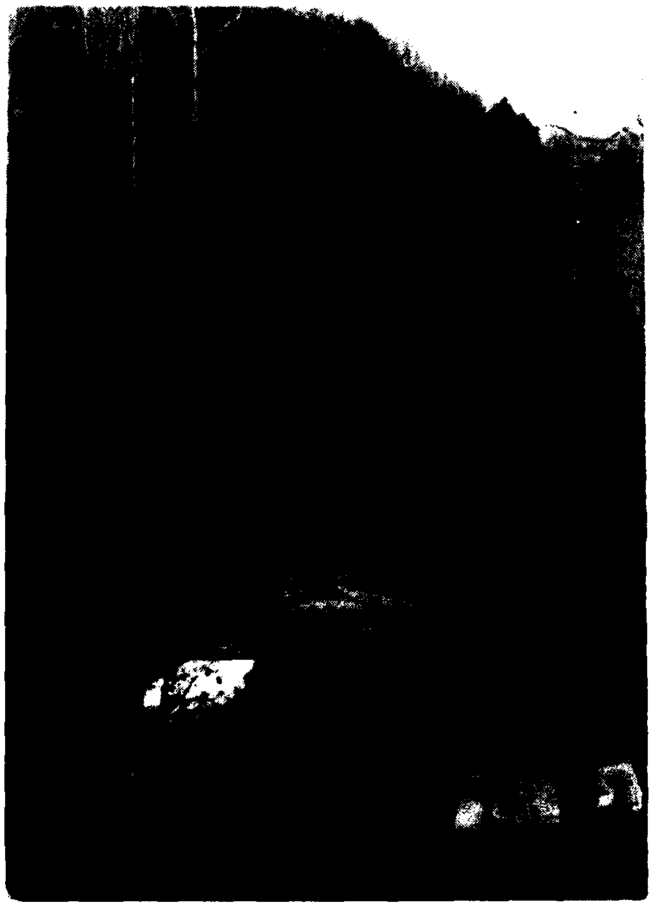


Figure 6.2 (E009) Whipple Truss bridge over the Big South Fork eastbound entrance with approach span in the foreground.

Figure 6.3 (E001) Peter's Bridge. 3/4 view of single span Pratt through truss.

Figure 6.4 (EJ03) Burnt Mill Bridge. Pratt through truss in foreground and Pratt pony truss in background.

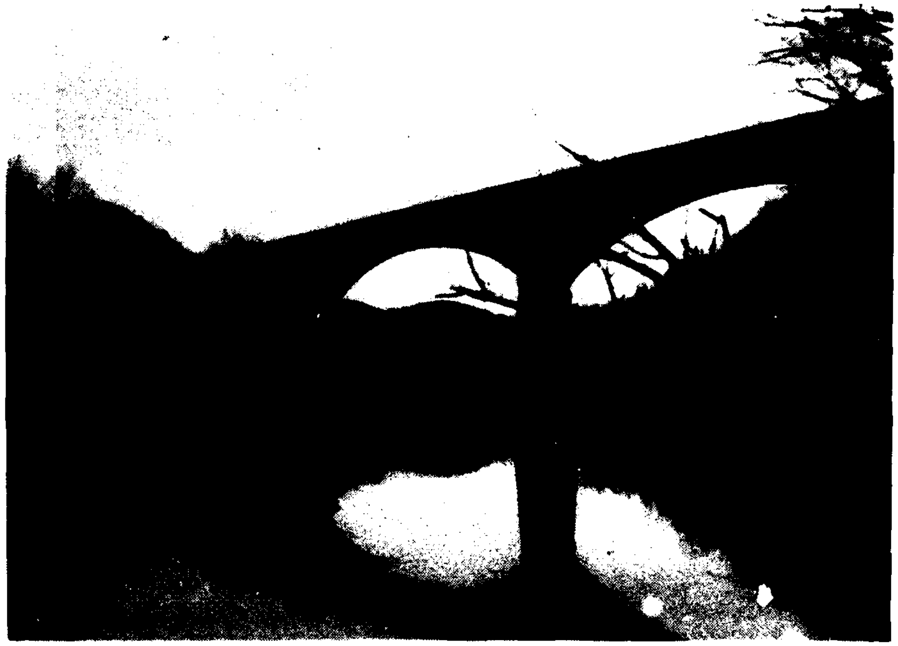


Figure 6.5 (E023) Kentucky and Tennessee Railway concrete arch bridge over Big South Fork facing upstream.

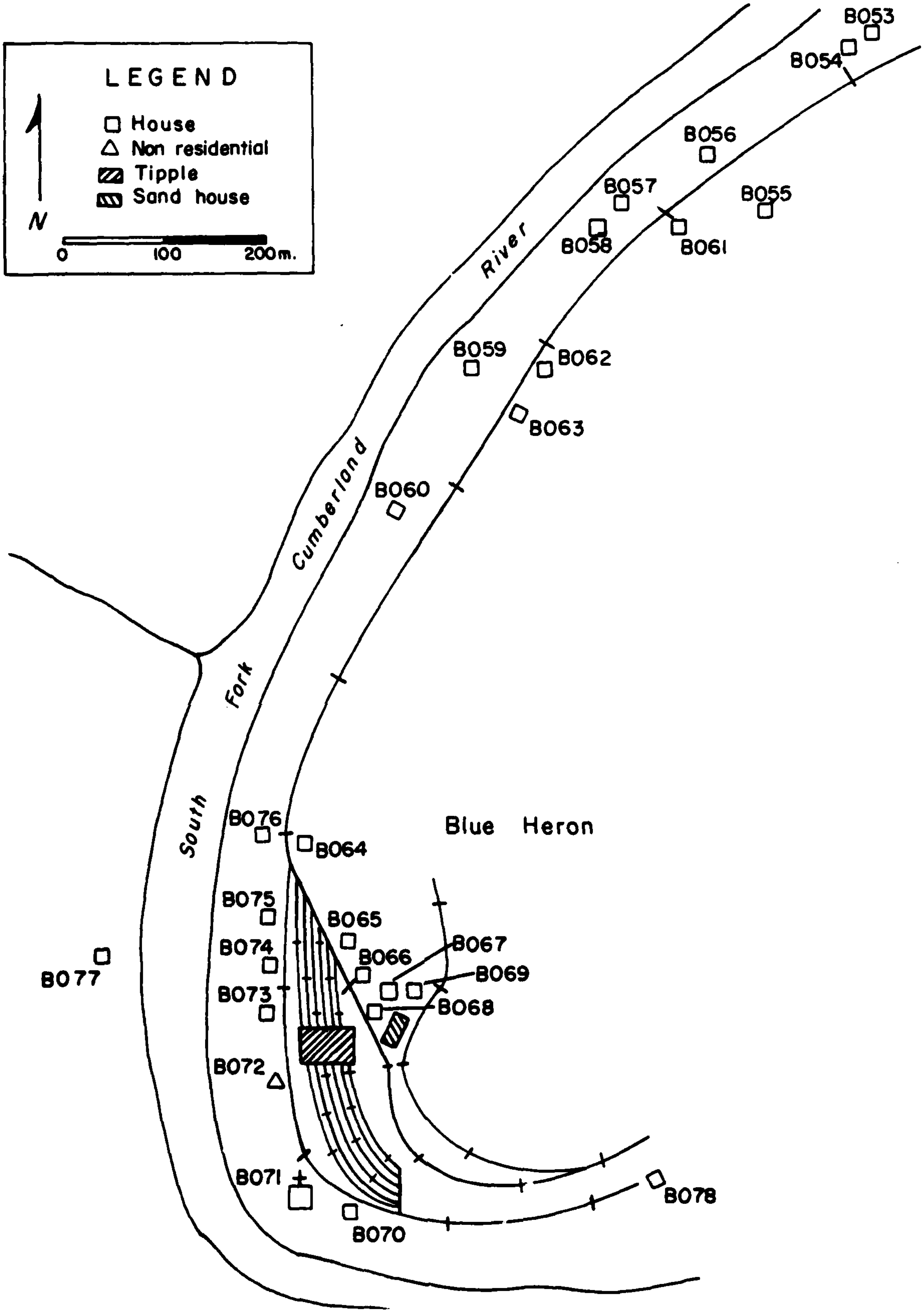


Figure 6.6 Plan of Blue Heron Community.

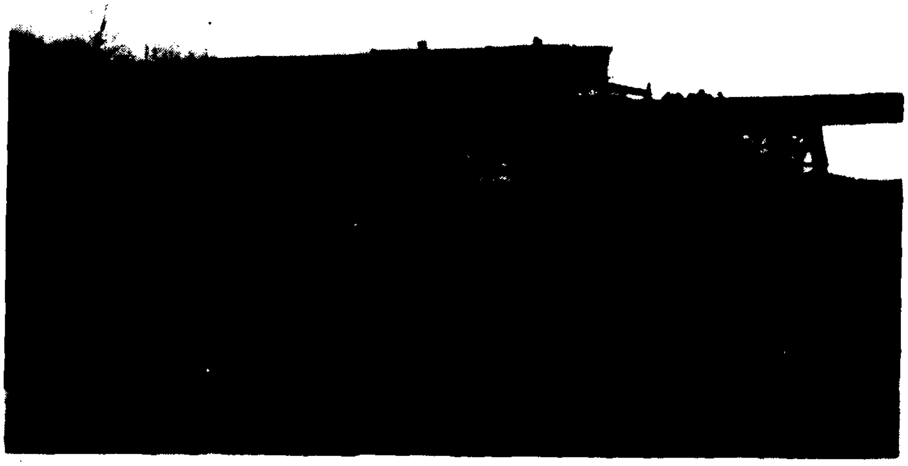


Fig. 6.7A (E020) Blue Heron Coal Tipple facing south.

Fig. 6.7B (E020) Blue Heron Coal Tipple load'ng shoots in background.

VII. RESULTS AND CONCLUSIONS

DETERMINATION OF SIGNIFICANCE

Field investigation of architectural and engineering resources in the Big South Fork National River and Recreation Area identified a total of 49 extant buildings and 17 extant engineering resources which retained sufficient structural integrity to require evaluation. Resources of post-1930 construction which were excluded from detailed consideration included 21 buildings and 4 engineering resources. The total of resources thoroughly evaluated, thus, was 28 architectural and 13 engineering. Application of the research design to the assessment of these resources and conclusions with respect to the significance of the resources are presented in the remainder of this chapter. The evaluation procedure has identified 19 significant architectural resources and 4 significant engineering resources.

A. ARCHITECTURAL RESOURCES

Examination of topographic maps dating from 1952 through 1955 and the project area boundaries as indicated on National Area Plan blue line maps identified a total of 273 architectural sites. Each of these localities (presumably the locatio, of a building in the early 1950s) was visited. Field investigation revealed that 43 of the 1950s buildings remained standing. Smaller outbuildings were found in association with mapped structures in a number of cases. Of these outbuildings, six were found to be of pre-1930 construction and were added to the sample of buildings requiring evaluation. The total of standing buildings in the National Area was thus 49. Locations of these buildings are shown in Figures 7.1 and 7.2.

Loss of architectural resources in the project area during the last 30 years has been dramatic. The surviving structures constitute less than 16 percent of the buildings present within the National Area in the early 1950s. Examination of a 1934 topographic map in conjunction with the settlement patterns analysis revealed that 200 buildings existed in the McCreary County portion of the project area in 1934. Only 6 buildings of this vintage survive today. Unfortunately, comparable data are not available for all portions of Tennessee lying within the project area.

Buildings initially constructed after 1930 were specifically excluded from the population to be sampled (Table 7.1). Upon the removal of these 21 buildings, seven criteria were employed in selecting a sample for intensive documentation and significance evaluation. These criteria are:

1) Socioeconomic status of owner-builder;
2) Representativeness of a particular time period;
3) Potential for demonstrating the evolution of a farmstead;
4) Representativeness of the buildings of particular types and construction techniques;
5) Representativeness of the various neighborhoods in the project area;
6) Structural condition of the building; and
7) Historical or architectural significance on a state or national level.

Given the non-random character of buildings in the project area, it was neither possible nor necessary to use all of the above criteria in selecting a sample. Applicability of each criterion is discussed in turn below.

1. <u>(Criterion 1) Socioeconomic Status of Owner-builder</u>

The use of this criterion was not necessary. Informant interviews, results of the Big South Fork Folklife Study, and existing statistical data suggest that there was very little socioeconomic differentiation in the BSFNRRA. Interviews revealed that the principal sources of income between 1880 and 1930 were subsistence and part-time farming, lumbering, and coal mining. Mine superintendants, company doctors, and other mine officials lived in the mining camps, but these houses are no longer standing. Persons of higher socioeconomic status also resided in the present-day communities of Jamestown, Allardt, and Rugby, Tennessee, and in Stearns, Kentucky. However, these towns are outside of the project area. Although good documentary evidence of socioeconomic status for the pre-1880 period is not available, early histories suggest that there was little socioeconomic differentiation within the early pioneers who settled in the project area. All of the standing buildings located in the BSFNRRA are representative of the lowest socioeconomic status level in the area.

2. <u>(Criterion 2) Representativeness of Particular Time Periods</u>

Three historic time periods were identified by the Big South Fork Folklife Study (Duda 1980) based on changes in socioeconomic patterns. These time periods are: pre-1880; 1880-1950; 1950-1980. The pre-1880 period begins with initial white settlement in the area; the main economic pursuits were subsistence farming, hunting, fishing, and trapping. The 1880-1950 period, beginning with the opening of the Cincinnati and Southern Railroad, was "characterized by the extensive commercial exploitation of the area's forest and mineral resources" (Duda 1980:60). Manufacturing, service industries, and public assistance characterize the socioeconomic base of the 1950-1980 period.

Although these time periods are based on historical or socioeconomic changes, they are too broad for our purposes. Therefore, as stated in the technical proposal, 10-year intervals have been used for the purpose of sample building selection. Because any building constructed after 1930 has been eliminated from the sampling universe, time periods do not extend beyond 1930. The 10-year periods, with the field numbers of the houses that fall within them, are listed below. The dates assigned to the buildings below are based on owner testimony. Although some of the dates may be of questionable accuracy, they cannot be confirmed with other kinds of documentary evidence.

1811-1820 -	BS41, BS40E, BS40I
1821-1830	
1831-1840	
1841-1850	
1851-1860	
1861-1870 -	ON06B
1871-1880 -	H071, H002
1881-1890 -	BS26, BS15
1891-1900 -	BS51, BS50, BS50A
1901-1910 -	BS30, B107
1911-1920 -	B081, H074
1921-1930 -	BS47, H032, H033, H033A, B104, B105, H018, H007, H007A, H008, BS40, B084, B087

There are many representatives of the 1921-1930 period in the BSFNRRA. Therefore, Criterion 2 is not considered applicable to the thirteen buildings assigned to this time period. The small number of standing buildings assigned to the other time periods

makes each of the remaining fifteen buildings an important representative of its time period. Therefore, Criterion 2 contributes to a positive significance determination for these fifteen buildings.

3. (Criterion 3) Potential for Demonstrating the Evolution of a Farmstead

There are four intact historic (pre-1930) farmsteads in the project area consisting of a total of thirteen structures. These are:

1. BS40, BS40E, BS40I, BS41
2. BS50, BS50A, BS51
3. H007, H007A, H008
4. H032, H033, H033A

Criterion 3 contributes to a positive significance determination for these thirteen buildings. The remaining buildings are either isolated, are associated with non-historic (post-1930) buildings, or the associated pre-1930 buildings are no longer standing and therefore criterion 3 is not considered applicable. The buildings which are part of pre-1930 farmsteads have potential for demonstrating farmstead evolution because of the presence of additions, alterations, variability of construction dates, and recycling of buildings for new uses.

4. (Criterion 4) Representativeness of the Buildings of Particular Types and Construction Techniques

The sampling universe of standing buildings in the BSFNRRA consists of the following types of buildings: six single-pen houses (BS26, BS50A, BS51, H071, H074, BS30); four double-pen houses (H002, H008, BS47, H032); one saddlebag house (BS41); six Cumberland houses (B084, B087, B104, B105, B107, H018); one two-story frame house (BS15); one single-slope roof shed (H033A); four single-crib barns (BS40E, BS40I, H007A, ON06B); two double-crib barns (B081, H007); one four-crib barn (BS40); one side-opening English barn (BS50); one transverse-crib barn (H033).

Log, box frame, balloon frame, and post and frame were all types of construction that were encountered in the BSFNRRA building inventory. Each type is represented in the sampling universe.

Single-Pen House (Montell and Morse 1976; Jordan 1978; Hutslar 1977; Kniffen 1965; Wilson 1970)

The single-pen house is the basic unit of construction from which many different folk house types and subsequent modifications evolved. The single-pen house consists of one room either rectangular or square. The house can be no more than 1½ stories in height.

BS26 is one of five single-pen log houses in the project area. It is a good example of this type because of its good condition and traditional modifications. BS50A is a good example of the type because of its good condition and adaptive use. BS51 is also a good example of single-pen log houses because of its condition and traditional additions. HO71 is not a good example because of its deteriorated condition due to extensive termite damage. HO74 is not a good example of the type because of an extensive addition with a concrete block foundation at the rear of the house.

BS30 is the only single-pen box frame house in the BSFNRRA, but the extensiveness and recency (ca. 1960) of the additions makes it a poor example of the type.

Double-Pen House (Jordan 1978; Hutslar 1977; Wright 1958; Riedl 1976)

The basic double-pen house is either log or frame, is two rooms wide and one room deep, and is no more than 1½ stories in height. Although the literature varies as to whether there is just one or two front doors, we will use one front door. The chimney or flue can be centrally located or at one or both gable ends.

H002 and H008 are the only two examples of the double-pen log house in the BSFNRRA. Both are good examples of the type. BS47 is one of only two double-pen box frame houses in the project area. It is a poor example of the type because of its flat roof. H032 is also not a good example of the type because of its recent remodeling which destroyed the original fenestration.

Saddlebag House (Jordan 1978; Hutslar 1977; Riedl et al. 1976; Montell and Morse 1976)

The basic saddlebag house, two rooms wide and one room deep, is no more than 1½ stories in height. The rooms, either square or rectangular, are distinct entities with a central chimney serving both rooms. The chimney is often made of stone native to the area. Usually each of the two front rooms has a door opening to the front of the house, although some of the oldest examples have a single door in the front center (Montell and Morse 1976).

BS41 is the only surviving example of the saddlebag log house in the BSFNRRA.

Cumberland House (Jordan 1978; Riedl et al. 1976; Wells 1978)

Riedl et al. (1976) identified the Cumberland house as a sub-type of the double-pen house. The Cumberland house is two rooms wide and one room deep, generally of frame construction. The chimney or flue is centrally located between the rooms at one or both gable ends. The height is never more than 1½ stories. Each room has a front door. Wells (1978) uses the name "Double-door Cumberland House" to describe a house with these features.

There are six Cumberland houses in the BSFNRRA. Both B104 and B105 are good examples of the type because of their good condition and traditional rear additions. H018 is unique by virtue of its balloon frame construction and size. This house has seven rooms while all the others of this type are limited to two rooms. B084 is a poor choice to exemplify the Cumberland house because of its deteriorated condition. B087 is a poor representative of the type because of a recent (1971) non-traditional addition to the front of the house. B107 is also a poor choice to exemplify the type because of non-traditional additions to the front of the house.

Two-Story Balloon Frame

The two-story frame house in our sampling universe (BS15) does not conform or fit into any of the categories or types in the literature reviewed. BS15 is the only two-story house in the BSFNRRA and the oldest surviving example of balloon frame construction in the project area.

Single-Crib Barn (Montell and Morse 1976; Hutslar 1977; Jordan 1978; Wright 1958; Glassie 1970)

A single-crib barn consists of a single room, rectangular or square, of frame or log construction. The height is never more than 1½ stories.

BS40E and BS40I are the only two early nineteenth century single-crib log barns in the BSFNRRA. ON06B is the only mid-nineteenth century single-crib log barn in the project area. H007A is the only early twentieth century single-crib log barn in the BSFNRRA.

Double-Crib Barn (Kniffen 1965; Jordan 1978; Hutslar 1977; Glassie 1970; Montell and Morse 1976)

The double-crib barn consists of two rectangular or square rooms of log or frame construction, sharing a common roof and separated by a driveway.

H007 and B081 are the only two examples of the double-crib log barn in the BSFNRRA. B081 is unusual because of its three crib design and partial cantilever loft.

Four-Crib Barn (Montell and Morse 1976; Jordan 1978; Kniffen 1965)

A four-crib barn is made of four square or rectangular rooms, one at each corner of a square floorplan. Each room is separated from each of the other three by a driveway running gable-to-gable and side-to-side.

BS40 is the only four-crib log barn in the project area. It is in good condition and is a good example of the type.

Side-Opening English Barn (Kniffen 1965; Montell and Morse 1976)

The side-opening English barn can be of log or frame construction and is two or more rooms deep and two or more rooms wide. The driveway opening is situated on the side of the barn instead of the gable end. The driveway runs side-to-side instead of gable-to-gable.

BS50 is the only example of the side-opening English barn in the project area.

Transverse-Crib Barn (Montell and Morse 1976; Kniffen 1965)

The transverse-crib barn, either of log or frame construction, is two or more rooms deep and the cribs generally run on each side of the driveway. The driveway runs gable end to gable end.

H033 is the only example in the project area and is a variant of the transverse-crib barn. The barn is three rooms deep and has a driveway that runs gable-to-gable end. It differs from the general transverse-crib barn in that the cribs are on only one side of the driveway.

Single-Slope Roof Shed (Riedl 1976)

Riedl (1976) lumps plank sheds under "miscellaneous sheds" and attributes the following characteristics: square or rectangular floor plans; horizontal or vertical wall planking; front or side doors; shed style or gable roofs.

H033A is the only single-slope roof frame shed of any size in the project area. While this building is unique for its time period in the project area, it represents a common type widely encountered outside the area.

5. (Criterion 5) Representativeness of Various Neighborhoods in the Project Area

We have defined a neighborhood or community as a spatially discrete cluster of buildings, often centered around a cemetery, a church, or a school. The following historic neighborhoods have been identified in the BSFNRRA: Gernt, Zenith, Yamacraw, Worley, Comargo, Blue Heron, Leatherwood, Bandy Creek, Station Camp (Elva), No Business Creek, Parch Corn Creek, Beech Grove (Watterstown), Bald Knob, and Shoopman. No historic buildings survive at the communities of Gernt, Zenith, Yamacraw, Worley, Comargo, and Blue Heron. Surviving structures in the remaining communities are as follows:

Leatherwood	-	H032, H033, H033A, H018, H002
Bandy Creek	-	BS50, BS50A, BS51, H007, H007A, H008
Parch Corn	-	BS26
Beech Grove	-	B084, B087
Bald Knob	-	B104, B105, B107
No Business	-	BS15
Station Camp	-	BS40, BS40I, BS40E, BS41

Criterion 5 contributes to a positive significance determination for these structures. The remaining structures are not associated with any community (present or historic). Criterion 5 is not considered applicable to the remaining 6 structures (B081, BS30, BS47, ON06B, H071, and H074).

6. (Criterion 6) Structural Condition of the Building

Condition was rated on the following scale: excellent, good, fair, or deteriorated. Four buildings were considered to be in excellent condition: BS40, BS41, BS50, and H032. Ten buildings were considered to be in good condition: B087, B107, BS26, BS40E, BS40I, BS50A, BS51, ON06B, H033 and H074. Twelve buildings were rated as fair: B081, B104, B105, BS15, BS30, BS47, H002, H007, H007A, H008, H018 and H033A. Two buildings (B084 and H071) were in deteriorated condition and were excluded from our sample. Deteriorated buildings are those with such severe structural damage as to be non-restorable.

7. (Criterion 7) Historical or Architectural Significance on a State or National Level

Informant interviews, study of syntheses of local history and consultation with members of the Big South Fork Folklife Study team indicates that no significant histoı ical events, either state or local, are associated with the structures now standing. The main architectural significance of standing buildings lies in their contribution to the study of folk architecture as discussed under criterion 4 above. All of the standing buildings were folk-designs and none, as far as can be determined, employed either architect or plans.

Since the main significance of the architectural resources lies in their contribution to folk architecture, Criterion 4 was an important indicator of potential National Register eligibility. Nineteen buildings were considered to be eligible for inclusion to the National Register based on the criteria described above. Two of the four double-pen houses in the sample (H001, H008) were deemed eligible. Both are in fair shape, are representatives of an identifiable neighborhood, and are good examples of the double-pen house. Both examples of the double crib barn (B081, H007) were considered to be of National Register significance. They are in fair condition and are good representatives of this type of architecture. Three of the six Cumberland houses (B104, B105, H018)

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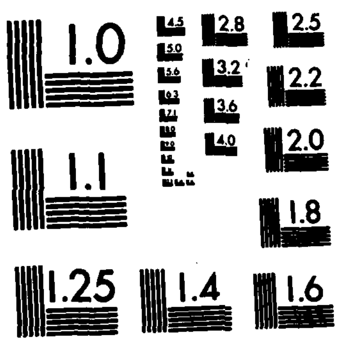


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

were considered eligible for the National Register. They are all in fair condition and representatives of a particular community. The other three Cumberland houses were considered poor examples of this type of architecture. All four single-crib barns (BS40E, BS40I, ON06B, H007A) were considered to have National Register significance. They are in good to fair condition and are good examples of single-crib barns. Three of the six single-pen houses in the project area (BS26, BS50A, BS51) were determined to be significant resources. All three are in good condition and exemplify the single-pen house type. The remaining three single-pen houses were not considered good examples of this architectural type. Each of the remaining five structures considered eligible to the National Register (BS15, BS40, BS41, BS50, H033) was deemed eligible because it is the only surviving example of its particular type of architecture in the BSFNRRA. H033A, the only example of the single-slope roof shed, was not considered eligible for inclusion on he National Register because it is an architectural type widely encountered outside the project area. The 28 buildings selected for the application of the criteria described in the preceeding pages are enumerated in Table 7.2. The specific application of each of the criteria to the 28 buildings is summarized in Table 7.3.

B. ENGINEERING RESOURCES

Field examination of engineering resources revealed that 16 of the 25 resources identified on the 1950s topographic maps retained sufficient structural integrity to warrant evaluation. Locations of the engineering resources are shown in Figures 7.3 and 7.4. The remaining nine structures were too fragmentary to be considered for National Register significance (Table 7.4). A procedure analogous to that used in the evaluation of architectural resources was used to assess engineering significance.

Age was considered prior to the application of other evaluation criteria. The minimum 50-year age criterion generally employed in National Register significance assessment was applied, and three engineering structures (vehicular bridges) were excluded from further consideration because of their recency (Table 7.5). Two engineering structures not meeting the minimum 50-year age requirement (the Blue Heron Coal Tipple/Tramway and the Railroad Bridge over Roaring Paunch Creek) were nevertheless assessed for significance because they possessed special historical importance and potential interpretive value for visitors to the National Area. A total of 13 engineering resources were, thus, selected for evaluation.

Criteria used in the assessment of National Register significance were as follows:

1) Representativeness of a particular time period;
2) Potential for demonstrating evolution of industry and transportation systems in the National Area;
3) Representativeness of the engineering structures of particular types;
4) Association with communities or industries in the National Area;
5) Structural condition of the engineering resource;
6) Historical or engineering significance on a state or national level.

Each of the 13 engineering resources was evaluated with respect to these criteria insofar as was possible. Applicability of each of the six criteria is discussed in turn below and in Table 7.6.

1. <u>(Criterion 1) Representativeness of a Particular Time Period</u>

Engineering resources of the Big South Fork area are narrowly restricted in time. All date to the period between 1907 and 1937, a period of just 30 years. This criterion can

still be applied, however, to differentiate those structures which are of types characteristic of the period from those of types which are not particularly temporally diagnostic. Truss bridges are highly characteristic of particular time periods, and thus structures E001, E003, and E009 are regarded as representative of a particular time period. Engineering structure E023, a ballast-filled, concrete arch bridge, possesses similar temporal diagnosticity. The Blue Heron Coal Tipple/Tramway structure (E020) is also temporally diagnostic, differing considerably from the earlier (but not extant) tipples at Worley and Yamacraw and from more recent tipples in Eastern Kentucky and Tennessee. Criterion 1 contributed to a positive significance determination for these five engineering structures.

Plate-girder bridges (E004, E005, E006, E007, E008, E021) have a long history and are still commonly used today. They thus have little value as representatives of a particular time period. Because no comparative studies of gaging stations have been produced by engineering historians, the temporal representativeness of the two gaging stations remains unknown.

2. <u>(Criterion 2) Potential for Demonstrating Evolution of Industry and Transportation in the National Area</u>

Four of the engineering structures have a potential for illustrating the industrial and economic growth of the BSFNRRA. The Whipple truss bridge (E009) over the Big South Fork on the Oneida and Western Railway was an important transportation link in the development of the lumber and coal industries in the North White Oak Creek drainage and for Fentress County generally. The ballast-filled concrete arch bridge over the Big South Fork River at Yamacraw (E023) holds an analogous position with respect to access to coal resources along Rock Creek and the communities associated with this area. The Blue Heron Tipple/Tramway (E020) and the bridge which provided access to it (E021) have a strong association with the development of coal resources and the potential for demonstrating evolution of industry and transportation systems in the National Area. Criterion 2 was not considered applicable to the remaining nine engineering resources.

3. <u>(Criterion 3) Representativeness of the Engineering Structures of Particular Types</u>

The purpose of this criterion is to select the best examples of particular types of engineering structures within the National Area. Only one bridge type is represented by more than a single bridge. There are six plate-girder bridges (E004, E005, E006, E007, E008, E021) in the National Area. The bridge over Roaring Paunch Creek (E021) is the best example of a plate-girder bridge in the BSFNRRA. The other plate-girder bridges suffer from poor abutment alignment and positioning, and are thus regarded as poor representatives of the plate-girder type. The representativeness of the two gaging stations (E017 and E019) cannot be assessed in the absence of a typology of such structures. All other engineering structures are unique representatives of their types within the National Area. E001 is the only surviving Pratt through truss bridge in the project area. E003 is a combination Pratt through and Pratt pony truss bridge. It is the only example of this type in the BSFNRRA. E009, the only Whipple truss bridge, is a rare survivor of a rare bridge type. The Blue Heron Tipple/Tramway (E020) is a unique example of a coal tipple and the only one in the project area. E023 is one of the largest and earliest ballast-filled concrete arch railroad bridges. It is the only example of this type of bridge in the BSFNRRA.

4. (Criterion 4) Association with Communities or Industries in the National Area

Most of the engineering resources of the National Area are associated with either a specific community or industry. Bridges E004, E005, E006, E007, E008, and E009 are part of the Oneida and Western Railroad and are linked to the lumber and coal industry associated with that railroad. Engineering structures E020, E021, and E023 have strong associations with the Stearns Coal and Lumber Company and with the communities of Blue Heron and Yamacraw. The two gaging stations (E017 and E019) and two vehicular bridges (E001 and E003) lack significant industrial and community associations within the National Area.

5. (Criterion 5) Structural Condition of the Engineering Resources

The plate-girder bridge over Thomas Branch (E004) is in deteriorated condition with heavily stratified rust scale on the web, angles, and rivets. All other engineering resources are in fair to good condition.

6. (Criterion 6) Historical or Engineering Significance on a State or National Level

Three of the engineering resources have national significance as important landmarks of engineering history. The Whipple truss bridge on the Oneida and Western Railroad (E009) is unique because of its size; the truss is 200 ft in length. Comp and Jackson (1977) report that Whipple trusses varied in length from 70 to 300 ft. Many of the larger Whipple trusses have been demolished during this century, and relatively few Whipple trusses in the 150 to 300 ft size range were ever built. Most bridges of this type have been demolished, and wide-scale informal contact with engineering historians failed to reveal the existence of any surviving Whipple truss bridges longer than E009. In an article written for model railroad enthusiasts, Wesner (1965:10) states that the longest Whipple truss railroad bridge ever built measured 180 ft from pier to pier. While definitive statements are extremely difficult to make in the absence of a complete national inventory of bridges, the Oneida and Western Railway Whipple truss may be the largest Whipple truss in existence and the largest ever employed on an American railroad. The rarity of Whipple truss bridges was confirmed by Janice Nolan who is conducting an inventory of historic bridges for the Tennessee Department of Transportation. She knew of no other surviving Whipple truss bridges in the State of Tennessee.

The Blue Heron Coal Tipple (E020) was a major engineering accomplishment in its time. An extensive description of the tipple's design in the leading industry journal (Edwards 1938) is testimony to its sophistication. The size and complexity of the tipple is directly related to the national importance of coal in the 1930s and 1940s. Older and more recent tipples were of far simpler design, both in the Eastern Coal Fields region of Kentucky and elsewhere in the nation.

The Kentucky and Tennessee Railway bridge at Yamacraw (E023) also possesses national significance. It was quite unique at the time of its construction. It is probably the oldest ballast-filled concrete arch bridge in the southern United States.

Two bridges (E001 and E003) will probably have state level significance. It is felt that these should be evaluated on the basis of the ongoing study of historic bridges by the Tennessee Department of Transportation.

The Blue Heron Coal Tipple, the Oneida and Western Railroad Whipple truss bridge, and the Kentucky and Tennessee Railway bridge at Yamacraw are also significant as local

engineering resources. They are landmarks for county residents and are unique for their size and type of construction. They are also important at the local level because of their connection with the coal and railroad industries which had a significant impact on the economic life of local residents.

Burnt Mill Bridge (E003) and Peter's Bridge (E001) may also be significant on a local level. However, the communities that are connected by these bridges are not included in the National Area and therefore the local significance of the bridges could not be adequately assessed. The remaining eight engineering structures do not have historical or engineering significance on a national, state or local level.

Table 7.1
Standing buildings of post-1930 construction excluded from evaluation for eligibility for the National Register of Historic Places

Field number	Description	Original construction date	Owner	Corps tract no.
B001	Concrete Block House	1946	Evans Hoover Keith	TRpp 4204
B002	Concrete Block House	1948-1949	Evans Hoover Keith	TRpp 4204
B011	Frame House	Post-1934	Lander Maxwell	209
B079	Frame House	ca. 1950	USFS	A-1
B080	Frame House	Post-1934	USFS	A-1
B090	Frame House	Post-1934	Harvey Watson	221
B093	Frame House	Post-1934	James Wilson	217
B103	Log Barn	1932	Alfred King	305
B111	Frame House	1951	Lloyd King	406
B011	Frame House	Post-1934	Lander Maxwell	209
S007	Log House	ca. 1940	Stearns Coal	609
H001	Frame House	1950	Oscar Blevins	1311
H009	Frame House	1945-1950	Jerry Clark	1304
H016	Frame Barn	1940-1950	Ralph M. Burke	1313
H027	Frame House	1946	James Terry	1711
H031	Frame Barn	1940-1950	Zula Duvall Waters	1724
H037	Frame House	ca. 1950	Hazel Hancock	1414
H038	Frame House	ca. 1950	Terry Fry	1406
H069	Smokehouse	ca. 1930-35	Eugene Stewart	1703
H070	Frame House	ca. 1930	Cecil Stewart	1703
R001	Concrete Bl. Machine Shop	1945-1950	Charles M. Whitehead	2100
R002	Concrete Bl. Service Sta.	1945-1950	Charles M. Whitehead	2100

Table 7.2
Standing buildings of pre-1930 construction which were evaluated for eligibility for the National Register of Historic Places

Field number	Description	Original construction date	Owner	Corps tract no.
B081	Log Barn	Pre 1930	US Forest Service	A-1
B084	Frame House	ca.1920	Delmus Watson	216
B087	Frame House	1900-1925	Nancy Susie Watson	218
B104	Frame House	1925	Alfred King	305
B105	Frame House	1926-1927	Eldred King	307
B107	Frame House	1905	Irene Hill/Ledbetter	302
BS15	Frame House	Pre-1930	Ted Q. Wilson	906
BS26	Log House	1881	Noble Smith	1100
BS30	Frame House	1905	Charles M. Anderson	700
BS40	Log Barn	ca.1930	Joe Simpson	1003
BS40E	Log Corn Crib	ca.1820	Joe Simpson	1003
BS40I	Log Smithy	ca.1820	Joe Simpson	1003
BS41	Log House	1816, 1820	Joe Simpson	1003
BS47	Frame House	Pre 1930	Paul King	1106
BS50	Log Barn	ca.1900	Charles Rudy Slavens	1310
BS50A	Log Outbuilding	ca.1900	Charles Rudy Slavens	1310
BS51	Log House	ca.1900	Charles Rudy Slavens	1310
ONO6B	Log Outbuilding	1870	Robert Dewayne Tapley	413
H002	Log House	1879	Oscar Blevins	1311

Table 7.2 (Cont.)

Field number	Description	Original construction date	Owner	Corps tract no.
H007	Log Barn	1929	Clara Sue Blevins	1302
H007A	Log Corn Crib	1929	Clara Sue Blevins	1302
H008	Log House	1929	Clara Sue Blevins	1302
H018	Frame House	1924	Ralph M. Burke	1313
H032	Frame House	1920-1930	Luther Thompson	1725
H033	Frame Barn	1920-1930	Luther Thompson	1725
H033A	Frame Outbuilding	1920-1930	Luther Thompson	1725
H071	Log House	ca. 1880	Maxine Ellis Loudin	2005
H074	Log House	ca. 1880	Raymond Rosenbaum	2008

Table 7.3.
Application of evaluation criteria to 28 buildings

	Building	Criterion #2	Criterion #3	Criterion #4	Criterion #5	Criterion #6
*	B081	Yes	No	Yes	No	Yes
	B084	No	No	No	Yes	No
	B087	No	No	No	Yes	Yes
*	B104	No	No	Yes	Yes	Yes
*	B105	No	No	Yes	Yes	Yes
	B107	Yes	No	No	Yes	Yes
*	BS15	Yes	No	Yes	Yes	Yes
*	BS26	Yes	No	Yes	Yes	Yes
	BS30	Yes	No	No	No	Yes
*	BS40	No	Yes	Yes	Yes	Yes
*	BS40E	Yes	Yes	Yes	Yes	Yes
*	BS40I	Yes	Yes	Yes	Yes	Yes
*	BS41	Yes	Yes	Yes	Yes	Yes
	BS47	No	No	No	No	Yes
*	BS50	Yes	Yes	Yes	Yes	Yes
*	BS50A	Yes	Yes	Yes	Yes	Yes
*	BS51	Yes	Yes	Yes	Yes	Yes
*	ON06B	Yes	No	Yes	No	Yes
*	H002	Yes	No	Yes	Yes	Yes
*	H007	No	Yes	Yes	Yes	Yes
*	H007A	No	Yes	Yes	Yes	Yes
*	H008	No	Yes	Yes	Yes	Yes
*	H018	No	No	Yes	Yes	Yes
	H032	No	Yes	No	Yes	Yes
*	H033	No	Yes	Yes	Yes	Yes
	H033A	No	Yes	No	Yes	Yes
	H071	Yes	No	No	No	No
	H074	Yes	No	No	No	Yes

Yes - Indicates that application of the criterion in question contributes to a positive significance determination. Buildings considered to have National Register significance are marked with an asterisk.

Table 7.4
Engineering resources excluded from consideration
because of fragmentary condition

Field Number	Description	Location
E010	Oneida and Western Railway bridge	North White Oak Creek
E011	Oneida and Western Railway bridge	Coyle Branch
E012	Oneida and Western Railway bridge	Groom Branch
E013	Oneida and Western Railway bridge	Laurel Fork
E014	Oneida and Western Railway water tower	Zenith
E015	Oneida and Western Railway bridge	Mill Seat Creek
E016	Oneida and Western Railway bridge	North White Oak Creek
E022	Vehicular bridge	Worley
E024	Vehicular bridge	Yamacraw

Table 7.5
Engineering resources excluded from consideration of National Register significance because of post-1930 construction

Field Number	Description	Date
E002	Highway 52 vehicular bridge	1949
E018	Leatherwood Ford vehicular bridge	1938
E025	Highway 92 vehicular bridge	1940

Table 7.6
Application of evaluation criteria to 13 engineering structures

	Engineering structure	Criterion #1	Criterion #2	Criterion #3	Criterion #4	Criterion #5	Criterion #6
**	E001	Yes	No	Yes	No	Yes	?
**	E003	Yes	No	Yes	No	Yes	?
	E004	No	No	No	Yes	No	No
	E005	No	No	No	Yes	Yes	No
	E006	No	No	No	Yes	Yes	No
	E007	No	No	No	Yes	Yes	No
	E008	No	No	No	Yes	Yes	No
*	E009	Yes	Yes	Yes	Yes	Yes	Yes
	E017	?	No	?	No	Yes	No
	E019	?	No	?	No	Yes	No
*	E020	Yes	Yes	Yes	Yes	Yes	Yes
*	E021	No	Yes	Yes	Yes	Yes	No
*	E023	Yes	Yes	Yes	Yes	Yes	Yes

Yes - indicates that application of the criteria in question contributes to a positive significance determination. Structures considered to have National Register significance are marked with an asterisk.

Double asterisks indicate those structures recommended for Tennessee Department of Transportation bridge program evaluation.

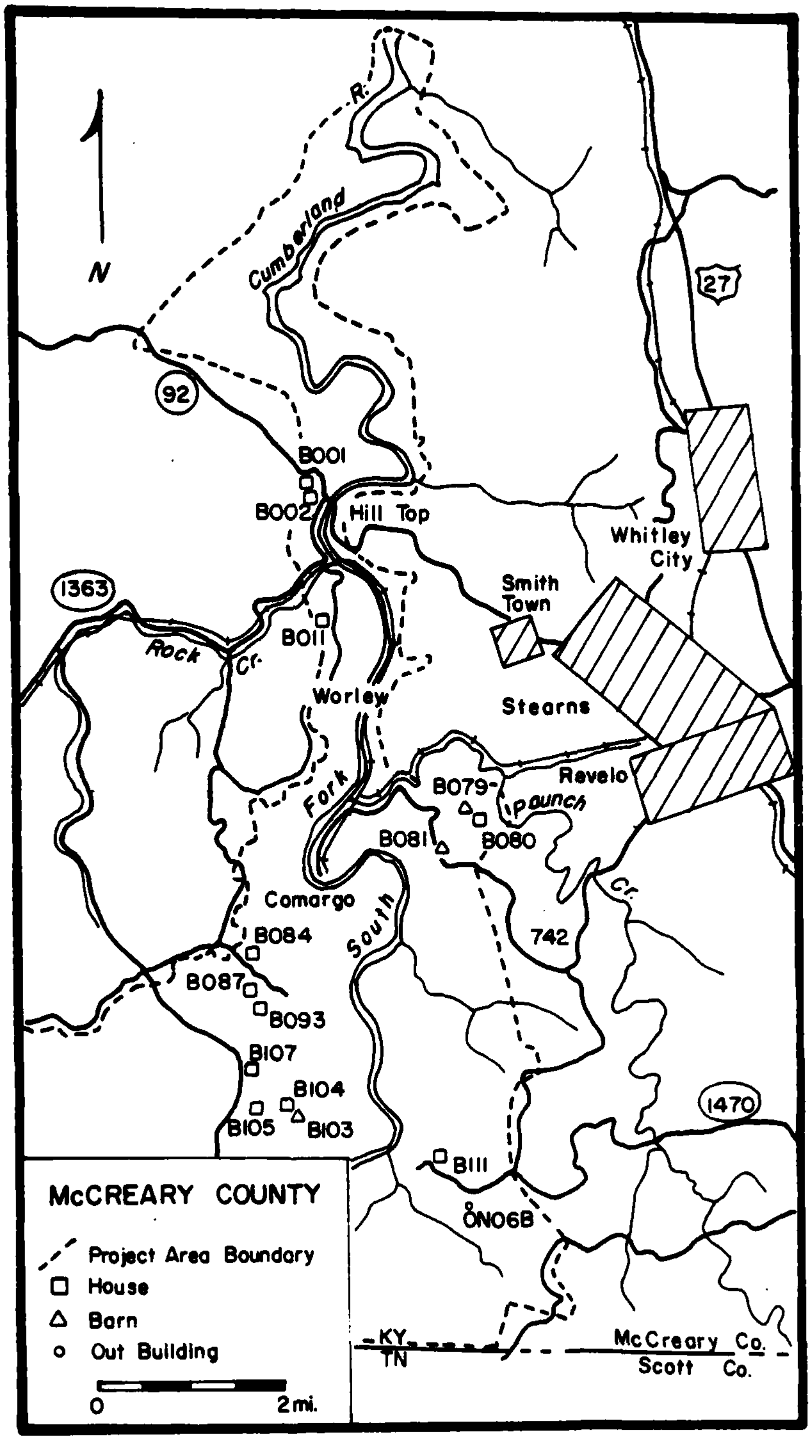


Figure 7.1 Architectural resources, Kentucky.

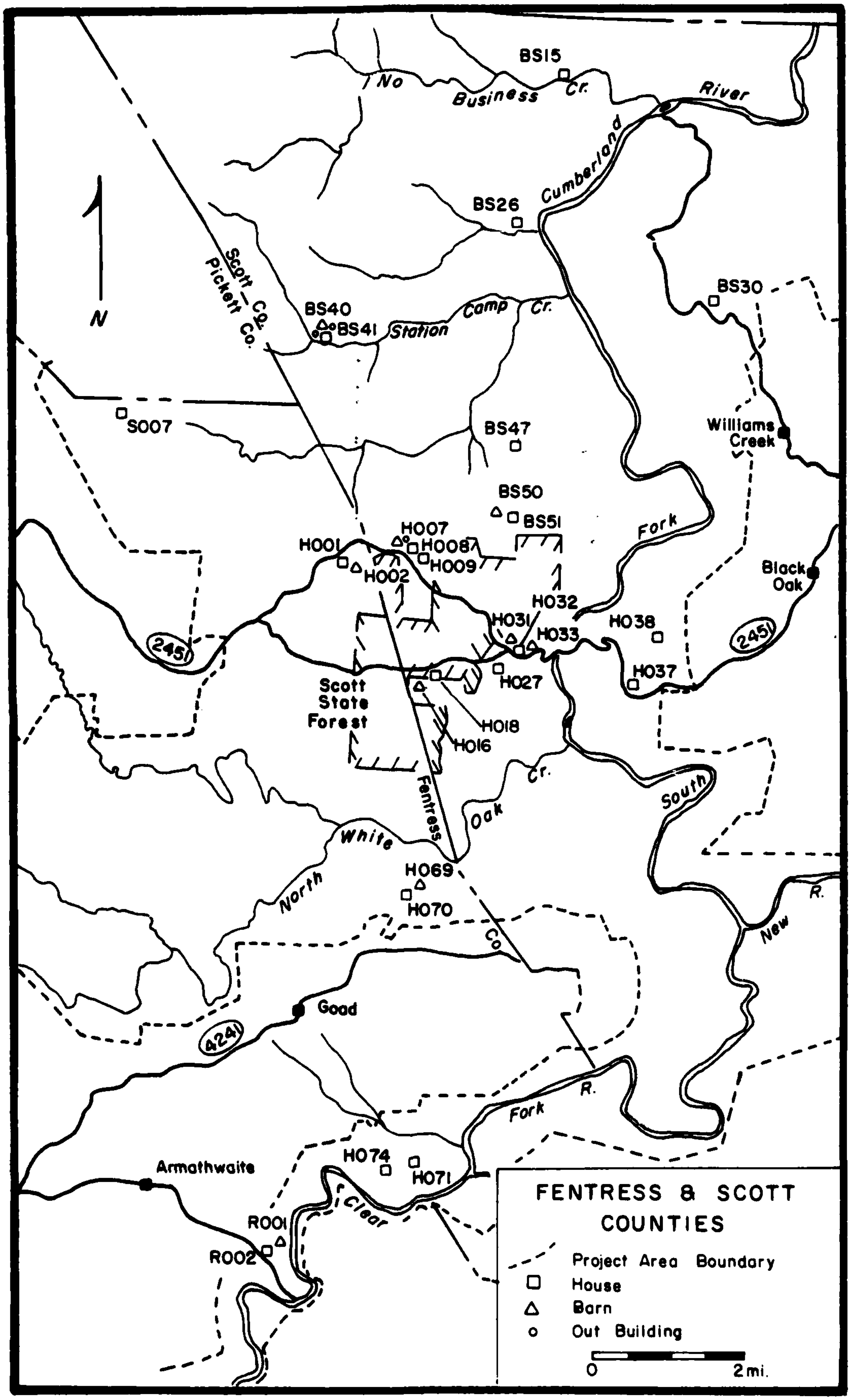


Figure 7.2 Architectural resources, Tennessee.

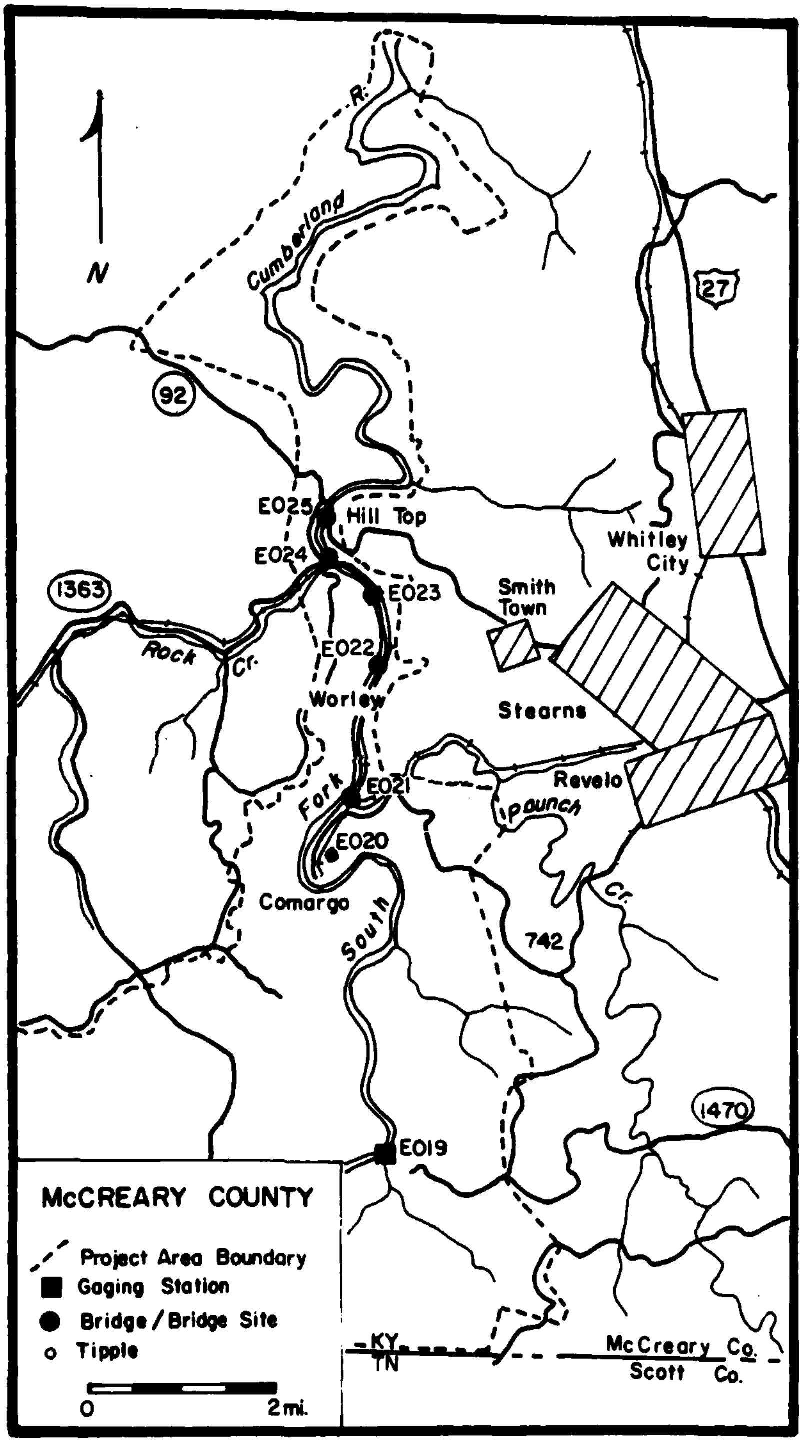


Figure 7.3 Engineering Resources, Kentucky.

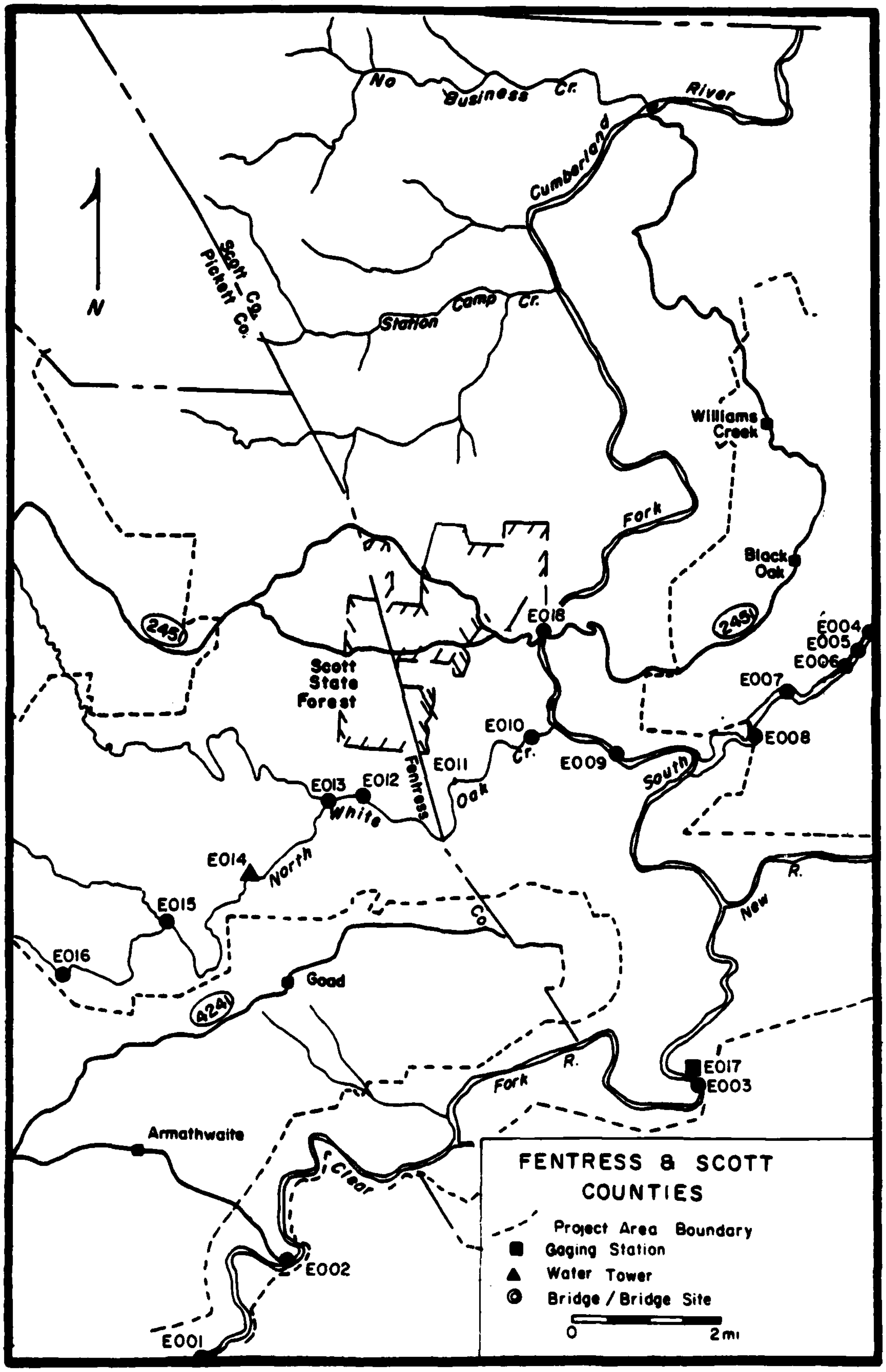


Figure 7.4 Engineering Resources, Tennessee.

VIII. MANAGEMENT RECOMMENDATIONS

A. ARCHITECTURAL RESOURCES

We have identified 19 buildings as potentially eligible for the National Register of Historic Places. We believe that nominations covering all 19 should be prepared. A long-term management plan for these resources should be implemented as soon as possible. The following key elements of that plan should be as follows:

1. Scheduling for immediate acquisition of all tracts containing historically significant buildings, and reservation of rights to historically significant buildings to the Corps of Engineers.

2. Protection from vandalism of historically significant buildings. The windows of all houses should be boarded over with plywood and all doors securely locked pending restoration. Some vandalism already has occurred at B105 and BS15.

3. Restoration should commence as soon as possible on all properties. This should include replacement of broken and missing window sashes, repair or replacement of defective doors, roof repairs, and other maintenance activities. A detailed restoration plan should be prepared for each building specifying materials to be used in restoration so that the historical integrity of each building is preserved. All 19 of the buildings deemed significant are suitable for restoration.

4. Interpretive use of the buildings in the development of the Big South Fork National River and Recreation Area seems appropriate. Three significant historic farmsteads are present in the National Area. Two of these have excellent potential for visitor interpretation of the history of farming in the area. The General Slavens Place contains three buildings (BS50, BS50A, BS51) and the Clara Sue Blevins place contains three buildings (H007, H007A, H008). Either or both of these could be used as a small museum for display of agricultural implements, crafts, and other aspects of folklife in the National Area. Parch Corn Lodge contains four buildings (BS40, BS40E, BS40I, BS41) of historic value, but modifications associated with the hunting lodge currently operated on the property have rendered this former farmstead less suitable as an interpretive locus than the other two farmsteads. We believe that development of lodge facilities at Parch Corn Lodge can be accomplished without compromising the integrity of the significant buildings located there.

   Interpretive use of the remaining 9 buildings (B081, B104, B105, BS15, BS26, H002, H018, H033, ON06B) should probably be more limited. Posting of signs with historical information and prohibiting visitor access to the inside of the buildings is probably suitable given the isolated situations of the buildings. All should be considered for potential use in non-interpretive functions.

5. If any significant buildings are threatened by either land acquisition or development plans, mitigative measures should be taken.

Management recommendations for buildings are summarized in Table 8.1.

B. ENGINEERING RESOURCES

The significant engineering resources of the National Area are:

E009 Whipple Truss Bridge, Oneida and Western Railway
E020 Blue Heron Coal Tipple and Tramway Bridge
E021 Plate-Girder Bridge, Kentucky and Tennessee Railway
E023 Ballast-filled concrete arch bridge, Kentucky and Tennessee Railway.

Two other bridges may prove to be significant to the overall bridge preservation plan of the State of Tennessee. These are:

E003 Burnt Mill Bridge
E001 Peter's Bridge

Our recommendations for all bridges are the same. Most bridges in the National Area require corrective maintenance and adequate safety features such as paddle boards and posting. We recommend that all bridges receive maintenance and that they be labelled with interpretive signs stating their historical significance.

The Blue Heron Coal Tipple and Tramway is under consideration for restoration. We feel that the tipple is of such significance that it should be restored at least to the degree of allowing guided tours of the inside of the facility. This requires corrective maintenance on all of the steel structure, replacement of all windows and corrugated steel siding, repair and renovation of wooden floors, and installation of safety equipment.

C. ARCHAEOLOGICAL RESOURCES

While this study of the architectural and engineering resources of the National Area was by no means archaeological in nature, we do feel obligated to make some recommendations with respect to archaeological resources in the National Area. Buildings indicated on the 1952-1955 topographic maps which were no longer standing when field checked were recorded as archaeological sites. This procedure has resulted in the identification of 230 archaeological sites in the National Area. Further study of topographic maps dating from the 1930's has resulted in the identification of 141 additional sites in Kentucky. These are not documented on site forms since they were not specifically examined in the field, but they are recorded in Appendix B. and located by UTM coordinates. Examination of Corps of Engineers maps dating from 1931 covering portions of the National Area reveals the existence of 86 additional historic sites. The total of known historic archaeological sites compiled from these maps is thus 457. The following areas can be identified as highly sensitive in terms of historic archaeological resources:

Yamacraw	38 Sites
Worley	86 Sites
Blue Heron	25 Sites
Barthell	5 Sites
Station Camp Creek	16 Sites
No Business Creek	26 Sites
Zenith	15 Sites

The mining communities (Yamacraw, Worley, Blue Heron, Barthell, Zenith) have a very great potential for historic archaeological research. We believe that careful survey and

testing should be conducted with the potential of historic archaeological resources in mind.

D. MITIGATION RECOMMENDATIONS

While we believe that preservation/restoration of all the significant resources (19 buildings and 4 engineering structures) is the preferred management alternative, we recognize that cost considerations and some development alternatives may threaten these resources with destruction. In light of this threat, we propose that the following mitigative measures be placed in effect should adverse impact be unavoidable.

Four kinds of mitigation strategies are recommended individually or in combination in the discussion that follows: measured drawings, measured plans, photographic documentation, and site-specific historic research. "Measured drawings" is used here to mean architectural drawings executed in accordance with Historic American Buildings Survey (HABS) standards and procedures (McKee 1970). A full set of HABS drawings includes elevations of the front, rear, and side facades of the buildings. "Measured plans" is used here to mean the floor plan of the structure showing internal room partitioning. "Photographic documentation" means duplicate photographs using color slides and 35mm negatives on medium or fine-grained film and processed according to architectural standards. Photographic documentation of a site should include at least the photographs listed in Table 8.2. "Site-specific historical research" includes the archival and oral history research necessary to reconstruct the evolution of the building through time: determining who lived there and when; determining who built the building; collecting folklife information from recent occupants; and collecting physical descriptions of the buildings and information on their alterations and additions. Archival research includes both a secondary literature search for references to the building or those persons connected with it, and a search of primary records such as deed and probate records, and individual household enumeration returns for 1900 and previous censuses. Recommendations for mitigation of significant individual architectural resources identified in the study area are contained in Table 8.3.

We recommend "measured plans" and "photographic documentation" of all buildings. We believe that "measured drawings" are necessary for houses but are not necessary for barns and outbuildings. "Site specific historical research" is recommended for all houses; this should also embrace those barns and outbuildings associated with them.

Four engineering structures are considered significant. For two of these, detailed measured drawings already exist. The Whipple Truss railroad bridge (E009) has been documented by Kroboth Engineers (1980). Original blueprints of the Blue Heron Tipple are available from:

Allen & Garcia Company
Consulting & Construction Engineers
332 South Michigan Avenue
Chicago, Illinois 60604

We feel that measured drawings should be made of E021 and E023 if any threat to these structures arises. Detailed photographic documentation would be appropriate for all four structures.

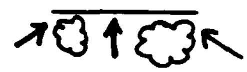
Table 8.1
Significant buildings - BSFNRRA and Management Recommendations

Field site number	Owner	Tract number	Management recommendations
B081	U.S. Forest Service	A-1	Post sign
B104	Alfred King	305	Post sign
B105	Eldred King	307	Post sign
BS15	Ted Q. Wilson	906	Post sign
BS26	Noble Smith	1100	Post sign
BS40	Joe Simpson	1003	Lodge complex
BS40E	Joe Simpson	1003	Lodge complex
BS40I	Joe Simpson	1003	Lodge complex
BS41	Joe Simpson	1003	Lodge complex
BS50	Charles Rudy Slavens	1310	Interpretive farm
BS50A	Charles Rudy Slavens	1310	Interpretive farm
BS51	Charles Rudy Slavens	1310	Interpretive farm
H002	Oscar Blevins	1311	Post sign
H007	Clara Sue Blevins	1302	Interpretive farm
H007A	Clara Sue Blevins	1302	Interpretive farm
H008	Clara Sue Blevins	1302	Interpretive farm
H018	Ralph M. Burke	1313	Post sign
H033	Luther Thompson	1725	Post sign
ON06B	Robert Dwayne Tapley	413	Post sign

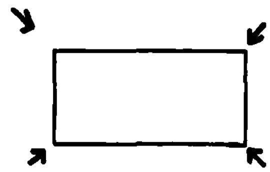
Table 8.2
Photographic documentation for
historic standing structures mitigation

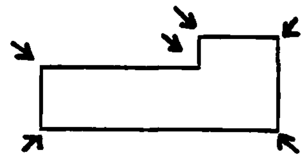
<u>House:</u>

1. a. One photograph straight-on of each elevation;
   b. where trees block the view take shots at an angle as well to illustrate the facade.



2. a. One exterior photograph of each corner showing two elevations:





   b. more photos if necessary to show the relationship of parts to the whole.

3. Exterior detail shots where applicable:
   a. porch(es)
   b. porch columns(s)
   c. example of window one if all are the same, or one of typical window and one of each variation
   d. one door if all are the same, one of each if all are different
   e. chimney(s), former chimney location(s), or remains of chimney
   f. piers - one if all are the same, one of each if two or more kinds
   g. steps
   h. eave treatment
   i. gable cap if decorated
   j. other decorative features - trim, bay windows, etc.
   k. decorative roof features - cresting and finials, cornice pieces.

4. Construction details and materials:

   a. close-up of siding (and porch siding if different)
   b. cross-section of siding where possible
   c. corner-notching on log building
   d. roof framing (either interior or exterior where visible)
   e. floor boards.

5. Interior photos whenever possible:

   a. door, window and moulding trim
   b. photos of wallpaper and paint (color slides)
   c. mantlepieces
   d. cabinetry
   e. doors
   f. old furniture
   g. windows
   h. doorknobs
   i. two wide-angle views from each room, the two photos together showing all four walls.

Table 8.2 (Cont.)

6. Alterations and additions:

   a. Take close-up where an addition or possible addition is joined, or where one once was, including both foundations and roof line (or two separate shots).
   b. Check for building transitions and photograph:
      interior walls that once were exterior walls;
      windows that once were fireplaces;
      enclosed porches and breezeways (materials will be different, or join will be noticeable);
      patching (can sometimes be used to date);
      variations in materials within a wall which could indicate a window or door closed up, or a window made from a doorway;
      nail lines or discoloration that would indicate porches in logical places.

<u>Barns</u>:

1. a. One photograph straight-on of each elevation;
   b. where trees block the view take shots at an angle as well to illustrate the facade.

2. a. One exterior photograph of each corner showing two elevations:

   b. more photos if necessary to show the relationship of parts to the whole.

3. Exterior detail shots:
   a. hay door(s), other small doors and openings
   b. hardware
   c. close-up of siding
   d. cross-section of siding if visible
   e. one of each type of window.

4. Construction and materials as above, plus:

   a. stall construction
   b. wall framing
   c. roof framing.

Outbuildings:

1. a. One photograph straight-on of each elevation;
   b. where trees block the view take shots at an angle as well to illustrate the facade.

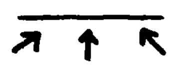


Table 8.2 (Cont.)

2. a. One exterior photograph of each corner showing two elevations:

   b. more photos if necessary to show the relationship of parts to the whole.

3. Detail shots if applicable:
   a. hardware
   b. doors
   c. windows
   d. gable overhang
   e. chimney
   f. etc.

4. Construction details and types of materials used as appropriate to illustrate the structure. All photographs should include a scale. Color photographs of interiors and exteriors should include a color wheel.

Table 8.3
Mitigation recomendation - significant architectural resources

	Measured drawing	Measured plan	Photographic documentation	Site-specific historical research
B081		X	X	
B104	X	X	X	X
B105	X	X	X	X
BS15	X	X	X	X
BS26	X	X	X	X
BS40		X	X	
BS40E		X	X	
BS40I		X	X	
BS41	X	X	X	X
BS50		X	X	
BS50A	X	X	X	
BS51	X	X	X	X
H002	X	X	X	X
H007		X	X	
H007A		X	X	
H008	X	X	X	X
H018	X	X	X	X
H033		X	X	
ON06B		X	X	

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